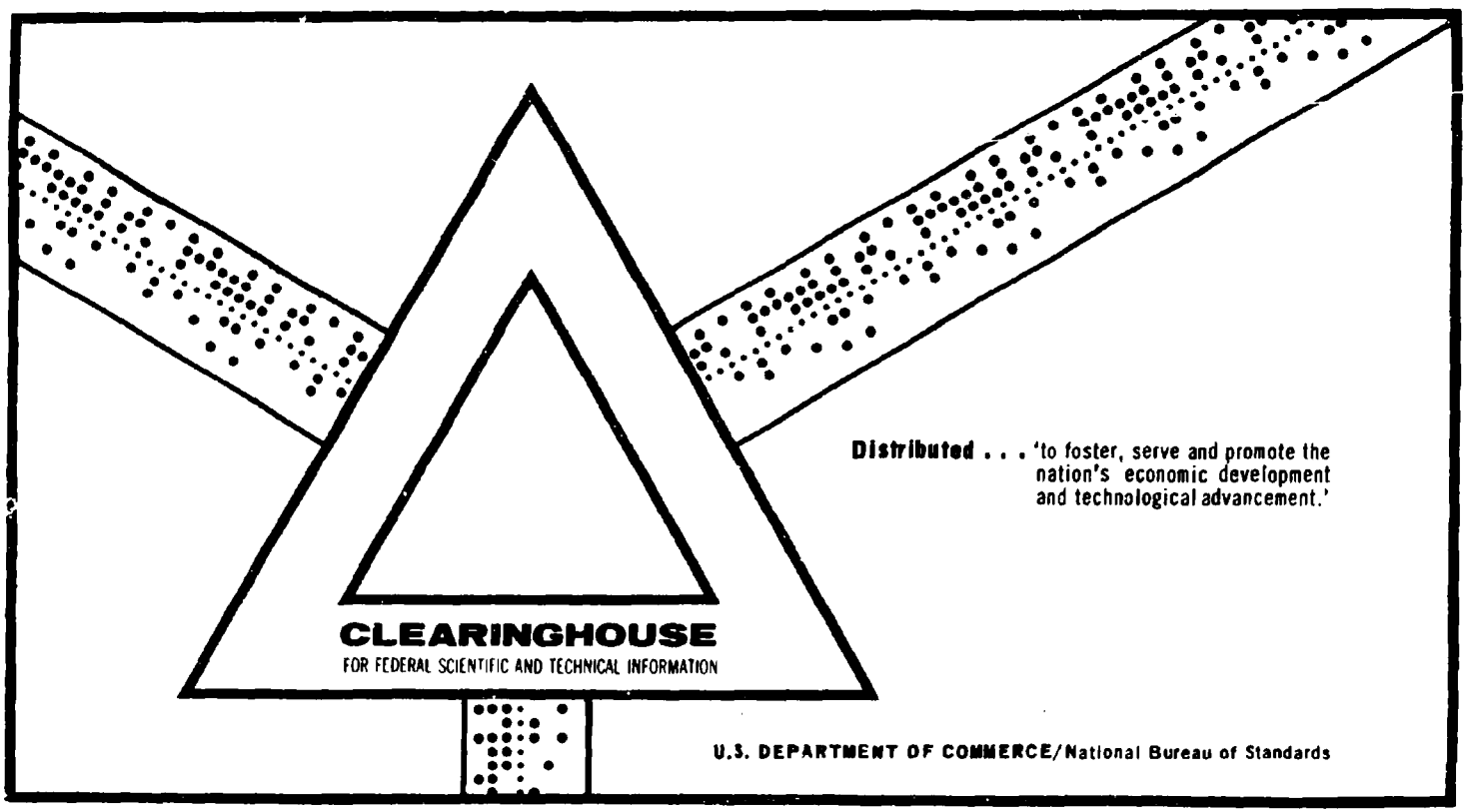
THE IMPACT OF MODERNIZATION IN THE PHILIPPINES

George M. Guthrie, et al

Pennsylvania State University
University Park, Pennsylvania

June 1969



THE IMPACT OF MODERNIZATION in the PHILIPPINES IV

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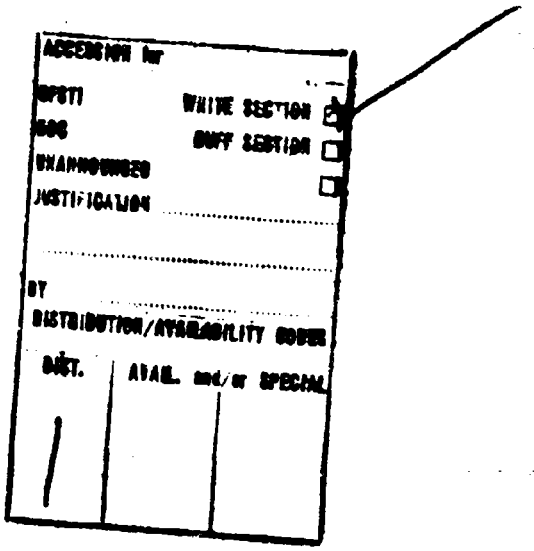
Ateneo de Manila University

FOURTH TECHNICAL REPORT—June 1969

This Research was supported by the Advanced Research Projects Agency under ARPA Order No. 855, under the Office of Naval Research Contract No. Nonr 656 (37). The project was administered jointly by The Pennsylvania State University, United States of America, and the Ateneo de Manila University, Republic of the Philippines, with George M. Guthrie and Frank Lynch as co-directors.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Abstract

This report contains four chapters, each chapter representing a project conducted under the Ateneo-Penn State Basic Research Program.

The first chapter, "New Movement in the Catholic Church: A Study of the Cursillo," explains how and why the three-day "little course in Christianity" is effective on the personal, group, and community levels. Findings reveal that on the personal level, the Cursillo seems to make a person more friendly, less aloof, and more understanding of other people. On the group level, however, the Cursillo apparently does not account for a person's making of new or more friends, either with those of the same or of a higher social standing than he; at most, he tends to be friends with fellow Cursillistas more than with non-Cursillistas. On the community level, the Cursillo seems to make a person identify more strongly with the Church and give more money to the poor. The explanation as to why the Cursillo is effective may be found in the interplay of many factors: the friendly atmosphere during the course; the use of laymen-speakers, personal testimony, letters of recommendation, and small groups; the challenge offered to one to make a stand.

The second chapter, "Cultural Differences in Performance in Communication Networks among Filipino, African, and American Students," presents the results of experiments in communication networks—problem solving by groups whose members communicated with each other only in writing. Results of experiments conducted with American, African (Nigerian and South African), and Filipino groups were compared in terms of average number of messages sent, the length of time spent in solving a problem, and the level of satisfaction each group member felt after each experiment. The Nigerians took the longest time apparently because they thought that it was up to each individual to solve the problems for himself, rather than cooperate and accept answers from other group members, as the South Africans and the Americans did. The Filipinos sent a great number of messages, an indication that they not only checked the extent of their agreement continually, but did so in a manner which would avoid unpleasant negative assertions and preserve "smooth interpersonal relations." Perhaps on

account of the pleasant interchange they rated themselves the highest in terms of satisfaction.

The third chapter, "Autonomy, Dependency, and Problem Solving in Filipino Children," is a report on the results of psychological tests administered to 88 boys in kindergarten and first grade. It was discovered that highly dependent subjects made more errors under intrinsic reinforcement in a problem-solving task while highly autonomous subjects made less errors under the same conditions. Subjects who had had previous schooling made fewer errors under intrinsic reinforcement, but no differences were found under extrinsic reinforcement. Pseudo-autonomy—that is, high autonomy with high-dependency conflict—increased with age, but pseudo-autonomous subjects did not differ from genuinely autonomous subjects with respect to success in problem-solving or in amount of hostility expressed. Dependency conflict was not as rare as reports of Filipino society might lead one to believe, with rural subjects showing more dependency conflict than town subjects. *Hiyâ* or shyness was negatively related to dependency as well as to autonomy.

The fourth chapter, "Infant and Maternal Nutrition in Four Tagalog Communities," shows that there are few significant differences in maternal and infant-feeding practices among the communities studied. Diets of lactating mothers were insufficient in calcium, vitamins A and C, riboflavin, and thiamine. Rather than folk beliefs, which are largely accepted and largely harmless, it is poverty that determines what the people eat. Home production of food should improve diets, but this is unsuccessful because of high costs, lack of space, and danger of theft. There is also an almost universal lack of knowledge of, and concern with, the diet of the preschool child. Judging from the little variations in eating habits of all the communities, it seems that schools and puericulture centers exercise the same influence regarding nutrition education. Although mass media have not greatly altered traditional eating patterns, they may have been responsible for the people's abandonment of certain folk beliefs and non-medical practitioners.

Contents

New Movement in the Catholic Church: A Study of the Cursillo*

William P. Bruton, S.J.

Of all the changes that have taken place in the Philippines in the last few years, there is perhaps none more interesting or significant than the rise of the *Cursillo*, or "Little Course in Christianity," within the Roman Catholic Church. This movement, which had about 40 members in January 1963, has spread to include more than 60,000 people today.

The spectacular growth of the Cursillo is not peculiar to the Philippines; it is a world-wide phenomenon. From Spain, where it started twenty years ago, the Cursillo has spread across five continents to more than fifteen countries. The first Cursillo was held in the diocesan center of Palma de Mallorca, in Spain, on January 7, 1949. It was the result of more than eight years of experimentation by a group of priests and laymen, under the direction of Bishop Juan Hervas.

That first Cursillo was a success, and the movement spread fairly quickly throughout Spain, and then from Spain to other parts of the world. In 1952, the Cursillo reached Colombia, and from there it spread to other parts of the Americas. The Cursillo reached the United States by the second half of the 1950's and from there it came to the Philippines.

In the fall of 1962, Archbishop Julio Rosales of Cebu visited the Cursillo center of Stockton, California, and made arrangements for the first Cursillo in the Philippines. Bishop Lino Gonzaga, then of Palo, Leyte, was also quite interested in the Cursillo, for he had spoken to Bishop Hervas at the Second Vatican Council and was aware of its possibilities. Less than a month after the first Cursillo in Cebu, Bishop Gonzaga had organized his Cursillo staff, and this group has done a great deal to spread the Cursillo in the Philippines.

The stories one hears about the Cursillo and about its effect on people are as interesting and as spectacular as its growth. A whole collection of songs, stories, and legends has grown up around a new folk hero—the *Cursillista*. Apparently, violent sinners are converted into zealous apostles with impressive regularity.

* The research on which this paper is based was part of the Ateneo-Penn State Basic Research Program, sponsored by the United States Office of Naval Research, with The Pennsylvania State University as prime contractor (Nonr-656[37]).

Wherever it has gone, the Cursillo has stirred up rather strong reactions—people seem to be either strongly for it or strongly against it. An article in a local periodical which strongly criticized the Cursillo (Soriano 1967) received more than 30 published replies, and the controversy ended only when the editors begged people to stop sending in replies.

The Problem

Despite the strength of feeling both for and against the Cursillo, there is a lamentable lack of information about certain vital issues. Perhaps the main question, and the one about which there is the least evidence, is this: Does the Cursillo really work? It was with this question in mind that the Institute of Philippine Culture began its study of the Cursillo.

In the following pages, a description of that project and its results will be presented, in the hope that it will shed some light on a relevant and controversial topic. In the first part of the paper, we shall examine the effects of the Cursillo, as far as we have been able to identify them; in the second, we shall make a few speculations about the causes of those effects.

One will get a proper understanding of the results of this study only if he is aware of its objectives and its limitations. The research was designed to answer certain very definite questions, all of which were related to social change.

We were interested first of all in the perception of personal change: Do the Cursillistas feel that they themselves have changed? If they do, what sort of changes have they experienced?

After that, we were interested in changes at the interpersonal level: Does the Cursillista deal with his friends and his family in a new way? Do they notice this? At this level, we were also interested in the effect of the Cursillo on groups. Does the Cursillo create new friendship groups, that is, groups of people who were not friends until after the Cursillo?

Finally, we were interested in the effect of the Cursillo on society as a whole. Is it helping the local community? Is it helping the Church? Does it contribute to the creation of social consciousness among Cursillistas?

These are all rather difficult questions to answer, and we shall certainly *not* give the final answer in this paper. However, we shall offer some tentative answers and try to indicate which are the more likely and which the less likely.

Methodology

The tool which was used to answer the foregoing questions was an interview (see Appendix A). There was a simple pattern to the interview: We asked our respondents what organizations they belonged to, what the activities of these organizations were, who were the new friends they had made through these activities, whether they thought they had changed in the last few years, and other similar questions. Naturally, we tried to avoid asking any leading ques-

tions and gave no indication that we were interested in the effectiveness of the Cursillo.

To get an idea of the effectiveness of the Cursillo, we found it necessary to interview not only Cursillistas, but also a control group—people who had not made the Cursillo, but who were very similar to the Cursillistas with respect to variables like education, social class, and general identification with the Catholic Church. Members of the Christian Family Movement (CFM) were chosen as coming closest to meeting these requirements.

Our original plan was to interview 60 men who were members of the CFM, 30 of whom had made the Cursillo, 30 of whom had not. If there appeared significant differences between the two groups, we would have some reason for thinking that the Cursillo might be the reason for these differences.

The 1967 directory of the CFM lists all its members in the Manila Area and gives a breakdown of members by location of residence.[1] From this directory, a proportional random sample of 120 male members was drawn. The membership status of these 120 people with respect to the Cursillo was then ascertained by interviewing CFM unit chaplains. From this list of 120, a proportionate random sample of 30 Cursillistas was taken, as well as a similar sample of 30 non-Cursillistas.

When the sample lists were completed, two research assistants contacted and interviewed the respondents. Interviews were held either in the interviewee's office or in his residence, whichever was more convenient. Unfortunately, due to the pressure of time and circumstances, we were able to interview only 26 out of 30 Cursillistas, and 17 out of 30 non-Cursillistas. In terms of age, education, and occupation, there are only slight differences between the two groups, and these differences do not seem to be important.[2]

It should be noted that our sample was drawn from a list of Manila residents and so is representative only of the Manila urban population. The Cursillo may have a different effect in rural areas, perhaps a stronger effect, but this will be a matter of speculation until research is brought to bear on it.

It is obvious that a study such as this will not give the ultimate and final answer to any question about the total effect of the Cursillo in the Philippines. It does provide limited answers to a few specific questions, however, and it will, one hopes, pave the way for more intensive and conclusive research.

Findings

Differences between Cursillistas and non-Cursillistas at the personal level. We turn now to the results of our study, and we may begin by considering the differences between the Cursillistas and the non-Cursillistas at the personal

[1] The Manila Area includes Manila, Quezon City, Makati, Pasay City, and Parañaque.
[2] See Appendix B for tables comparing Cursillistas and non-Cursillistas on these variables.

level. The first table has to do with the question of personal change: Does the interviewee feel that he has changed in the last three years, and if so, how? Obviously, there is a difference between the two groups, a difference which is quite significant statistically.

Table 1

CFM respondents classified by recent change they perceive in themselves, crossclassified by Cursillo membership status.

Change	*Cursillo membership status*		*Total*	*Chi square*	*Degree of freedom*	*Significance*
	Cursillista	*Non-Cursillista*				
No change	5 (19·2%)	13 (76·5%)	18	13·8	1	Probability (P) less than (<) 0·001*
Change for the better	21 (80·8%)	4 (23·5%)	25			
TOTAL	26	17	43			

* When a statistician says that a test is significant at the 0·001 level, he means that in less than one case in a thousand could such a result have occurred by chance, and consequently, it is much more likely that the result did not occur by chance. If a statistical test is significant at the 0·01 level, that means that in less than one case in a hundred could such a result occur by chance. Generally speaking, a statistical test must yield a result which has a probability of 0·05 or less in order for it to be considered significant. However, in some cases, a test which yields a result with a probability between 0·10 and 0·05 may be used as persuasive, if not as conclusive, evidence.

Table 2

CFM respondents classified by their judgment on whether family and friends consider them recently changed, crossclassified by their Cursillo membership status.

Judgment on family and friends' perception of change in respondent	*Cursillo membership status*		*Total*	*Chi square*	*Degree of freedom*	*Significance*
	Cursillista	*Non-Cursillista*				
No change	9 (34·6%)	9 (52·9%)	18	1·41	1	Not significant
Change for the better	17 (65·4%)	8 (47·1%)	25			
TOTAL	26	17	43			

With regard to changes noticed by others (Table 2), the pattern of the responses is the same as in the first table, though the difference between the two groups is not as striking.

If we grant that some sort of change has taken place in the Cursillistas, the next question is: What kind of change? The different kinds of change reported by the respondents are found in the third table.

Looking at the table, it seems that the most noticeable effect of the Cursillo on a person is to make him more friendly, less aloof, more understanding of

other people—in a word, more human. One way of looking at the change which seems to take place is to regard it as the removal of the barriers which a person has between himself and others. After the Cursillo, one is somehow or other closer to other people than he was before.

The other effects of the Cursillo can also be seen in the table. Obviously, aside from its general effect of making people more "human," the Cursillo affects different people in different ways: Some become busier and more active, others become happier and take life easier, others turn more humble and reflective.

Differences at the group level. If we shift our attention from the person to the group, we would suspect that the Cursillo also has an effect at this level. The results of our study show that there is no significant difference between Cursillistas and non-Cursillistas with regard to the making of new friends. (Almost everybody, it seems, is making new friends these days.) However,

Table 3

CFM respondents classified by kind of recent change they report as noticed by family and friends, crossclassified by their Cursillo membership status.

Kind of recent change	*Cursillo membership status*		*Total*	*Wilcoxon T*	*N*	*Significance*
	Cursillista	*Non-Cursillista*				
Respondent more understanding, more friendly, less aloof	12 (46·1%)	3 (17·6%)	15			
Respondent more religious, more prayerful	6 (23·1%)	2 (11·8%)	8			
Respondent more reflective	5 (19·2%)	1 (5·1%)	6			
Respondent happier, takes life easier	4 (15·4%)	0 (0·0%)	4	1·0	7	P<0·05
Respondent has fewer vices	4 (15·4%)	1 (5·9%)	5			
Respondent busier, more active	3 (11·5%)	3 (17·6%)	6			
Respondent more humble	2 (7·7%)	0 (0·0%)	2			
TOTAL	36	10	46			

when we inquire into the manner in which these new friends were met, the difference between the two groups in this matter becomes more apparent, as can be seen in Table 4.

Table 4

CFM respondents classified by way of making new friends, crossclassified by Cursillo membership status.

Way of making new friends	*Cursillo membership status*		*Total*
	Cursillista	*Non-Cursillista*	
Through CFM	2 (7·7%)	4 (23·5%)	6
Through Cursillo	19 (73·1%)	0 (0·0%)	19
Other ways	5 (19·2%)	13 (76·5%)	18
TOTAL	26	17	43

It does seem fairly clear from the table that the Cursillo is creating new friendship groups, and in that regard, it seems to have more of an effect than the CFM. Our study does *not* show that the Cursillistas have more friends than the non-Cursillistas. It simply shows that people who have made the Cursillo are more likely to be friends with one another than with people who have not made the Cursillo.

At this point, a cynic might be tempted to ask: Well, isn't that why people join the Cursillo—so that they can meet people who are wealthier and more influential than they are who will help them move up the social ladder?

Wishing at least to investigate this possibility, we gave our respondents a ladder with six rungs on it. The rungs were intended to represent six social classes, as follows:

1	Upper-upper class
2	Lower-upper class
3	Upper-middle class
4	Lower-middle class
5	Upper-lower class
6	Lower-lower class

Each respondent was asked to indicate where he thought he stood on that ladder, and also where he thought his new friends stood. We were thus able

to get some idea of the relative social status of the respondents and their new friends. The results can be seen in Table 5.

Table 5

CFM respondents classified by perceived relative social standing of recently made friends, crossclassified by Cursillo membership status.

Perceived relative social standing of recently made friends	*Cursillo membership status*		*Total*	*Chi square*	*Degree of freedom*	*Significance*
	Cursillista	*Non-Cursillista*				
Above respondent's class	14 (29·2%)	10 (28·6%)	24			
Same class as respondent	21 (43·7%)	18 (51·4%)	39	0·68	2	Not significant
Below respondent's class	13 (27·1%)	7 (20·0%)	20			
TOTAL	48	35	83			

What should be noted in this table is that both g ıps seem to follow the same general pattern in forming friendships. Our results indicate that whether he is a Cursillista or not, a person is most likely to form a friendship with someone whom he sees as being of the same social standing as himself; the farther away from each other two persons are on the social ladder, the less likelihood there is of a friendship forming between them.

So, if we ask the question, "Do people join the Cursillo in order to get influential friends?", the only answer we can give is that there is no evidence for a positive reply. Perhaps they do, but if they do, they do not seem to be succeeding.

Differences at the community level. Having presented evidence of the effect of the Cursillo at the personal and group levels, we move on now to the more difficult task of trying to assess just how much of an effect the Cursillo has had on the larger community, on the Philippines as a whole.

One way of answering this question would be to look at the activities of the Cursillistas, especially their new activities (those started within the last three years), and to see if the Cursillistas are more active in them now than they were before they made their Cursillo. Table 6 shows the new activities of both the Cursillistas and the non-Cursillistas.

Table 6

CFM respondents classified by recently initiated organizational activity, crossclassified by Cursillo membership status.

Recently initiated organizational activity of respondent	*Cursillo membership status*		*Total*	*Wilcoxon T*	*N*	*Significance*
	Cursillista	*Non-Cursillista*				
Helping others financially, finding jobs for poor	2 (7·7%)	2 (11·8%)	4			
Teaching catechism, working with youth	5 (19·2%)	2 (11·8%)	7			
Visiting poor and sick, giving medical help	3 (11·5%)	0 (0·0%)	3			
Raising money for concrete parish and community projects	6 (23·1%)	3 (17·6%)	9			
Helping others in religion	2 (7·7%)	0 (0·0%)	2	3	6	Not significant
Other projects	3 (11·5%)	2 (11·8%)	5			
No new projects	5 (19·2%)	8 (47·1%)	13			
TOTAL	26	17	43			

As far as these new activities are concerned, we do not find the obvious differences between Cursillistas and non-Cursillistas that we found at the personal level. It simply does not appear that Cursillistas have started more new activities in the past three years than the control group. However, we should not lose sight of the fact that our control group of non-Cursillistas are all members of the Christian Family Movement, which is a fairly active organization. Both groups seem to be doing something in the area of charitable works, and it might be interesting to see how they compare with Catholics of a similar background who are not members of the CFM.

If we look at all of the activities of the respondents, and especially if we look at the people who benefit from these activities, there do seem to be some differences between the two groups. Table 7 shows the activities of the two groups (not just the new activities), and Table 8 shows the beneficiaries of these activities, as seen by the respondents.

Table 7

CFM respondents classified by organizational activity, crossclassified by Cursillo membership status.

Organizational activity	*Cursillo membership status*		*Total*	*Chi square*	*Degree of freedom*	*Significance*
	Cursillista	*Non-Cursillista*				
Helping others financially, finding jobs for poor	20 (76·9%)	5 (29·4%)	25	9·52	1	P<0·01
Common religious activity, helping members in religion	13 (50·0%)	4 (23·5%)	17	3·03	1	P<0·10
Teaching catechism, working with youth	7 (26·9%)	6 (35·3%)	13			
Raising money for concrete community and parish projects	14 (53·8%)	9 (52·9%)	23			
Visiting the poor and the sick, giving medical help	7 (26·9%)	2 (11·8%)	9			
Other community service	24 (92·3%)	16 (94·1%)	40			
TOTAL	95	47	142			

Table 8

CFM respondents classified by stated beneficiary of their organizational activities, crossclassified by their Cursillo membership status.

Stated beneficiary of organizational activities	*Cursillo membership status*		*Total*	*Chi Square*	*Degree of freedom*	*Significance*
	Cursillista	*Non-Cursillista*				
Self and others	11 (42·3%)	9 (52·9%)	20			
Immediate neighborhood	9 (34·6%)	5 (29·4%)	14			
The Church	8 (30·8%)	1 (5·9%)	9	3·85	1	P<0·05
The poor	14 (53·8%)	4 (23·5%)	18	3·88	1	P<0·05
The whole community, society at large	15 (57·7%)	9 (52·9%)	24			
TOTAL	57	28	85			

There are many similarities in the activities mentioned by the two groups; however, there do seem to be two fairly important differences. The Cursillistas mention that they help the poor *financially* a significantly greater number of times than do the non-Cursillistas. In Table 8, it can be seen that they mention the poor as their beneficiaries more often than does the control group.

From the differences between the two groups, the conclusion which seems most reasonable to us is that the Cursillo makes its members more conscious of the poor than the average Christian usually is. It might also be that there is a group norm or expectation among Cursillistas that a Brother should help those in need, if he is in a position to do so.

The question of social consciousness among Cursillistas requires further study. It would be interesting to find out just how much in hard, cold cash the average Cursillista gives to the poor each year. Our study would lead us to believe that the Cursillista is, at any rate, more aware of the needs of the poor and actually gives more money and goods than the average non-Cursillista.

Another difference between the Cursillistas and the non-Cursillistas has to do with religious activities and the Church. As a group, the Cursillistas seem to be more conscious than the control group of helping one another spiritually, of having religious activities together, and of helping the Church. The Cursillistas seem to be really aware of their membership in the Church and to identify themselves with it quite strongly.

In this connection, it is interesting to note that, compared to the non-Cursillistas, a significantly greater number of Cursillistas have changed their attitude toward the Church for the better in the last three years (see Table 9). The reasons for this were split fairly evenly between the influence of the Cursillo and the effects of Vatican II.

Table 9

CFM respondents classified by self-perceived change in attitude toward the Catholic Church, crossclassified by Cursillo membership status.

Change in attitude toward Church as perceived by respondent	*Cursillo membership status*		*Total*	*Chi square*	*Degree of freedom*	*Significance*
	Cursillista	*Non-Cursillista*				
No change, change not described	10 (38·5%)	12 (70·6%)	22	4·24	1	$P<0.05$
Change for better	16 (61·5%)	5 (29·4%)	21			
TOTAL	26	17	43			

Interview-reply samples. The tables presented and the analysis offered in the preceding pages represent, in broad outline, the results of our study. They give one a framework and a set of categories which clarify the effects of the Cursillo at different levels of society. However, the Cursillo affects people, and perhaps a deeper appreciation of its effects would be gained from an examination of the actual replies of our respondents. The following are a few sample replies, presented as they were given:

Q. Do you feel that you yourself have changed in the last three years?

A. I've become more charitable, especially toward my enemies. This is because of the Cursillo. I've always been a good friend, even before I entered the Cursillo. Before, charity is only for friends; now it is for everybody.

* * *

Yes, I've changed, especially after the Cursillo. Each day I perform little acts that bring joy. The Cursillo really has taught me humility, made me realize that compared to the people around me I'm nothing.

* * *

A big change. I'm more considerate now due to the Cursillo. It was a terrific change, and now I always look at the human viewpoint.

Before, when students would make trouble in class, I would put them down [flunk them]; now, no more. Before I would discourage a student and tell him to drop my subject if he were doing poorly; now, I encourage the boy.

* * *

Malaki ho ang naging pagbabago. Nawala ang barkada. Iniiwasan na ang hindi mabuting barkada. Nagagampanan na ang lahat ng tungkulin sa bahay. Nagpapaliwanag ng obligasyon na dapat gawin ng Kristiyano.

Dating pusakal akong mangiinom, pero ngayon ay hindi na ako umiinom. Simula nang ako ay nagkursilyo ay may apat na beses pa lang akong nalalasing. Pero noon ay halos gabi-gabi na ay umuuwi akong lasing.

(A big change has taken place. No more *barkada* [gang]. I avoid bad companions. I do all that I'm supposed to do at home. I explain to others the obligations that a Christian has.

Before, I used to drink heavily, but now I don't drink anymore. Since the time I made the Cursillo until now I've only been drunk four times, but then [before the Cursillo] I used to come home drunk almost every night.)

Q. Have your family or your friends commented on any change in you over the last three years?

From the time I took the Cursillo, my family being irritated has reduced to a big extent.

My family may have noticed the increase in my activities and they are all involved in it. All the men in the office are Cursillistas. They have increased their activities; they are more involved in the problems of the day.

* * *

Boys' night out has been cut out—you know what I mean—because of my growing family and the Cursillo.

* * *

[One interview took place at home and the respondent asked his wife to answer:] He's more religious now because of the Cursillo. Before, he used to hear Mass outside the church. He never entered the church. Now he's right in front of the Blessed Sacrament. He goes as near to the altar as possible.

* * *

Yes. Formerly, when I was not yet a member of the movement, I only indulged in self-interests. I was selfish then; now it's just the opposite—selflessness. For we should say, "I shall pass this way but once, so any goodness that I can do, let me do it now, for I shall not pass this way again."

Q. What activities do these different organizations perform?

[After describing the activities, one respondent said:] The most tiresome is this Cursillo because you have commitments—daily visits, daily morning offering, Mass and Communion twice a week, novenas to the Blessed Mother every week, Stations of the Cross every week, rosary Cursillo way every evening together with the family, and other sacrifices. For the success of the candidates in the Cursillo, we offer them sacrifices like the ones mentioned above and we call them 'palancas'.

Before I thought I was happy when I went nightclubbing. But after I've entered the Cursillo, I found that true happiness lies in serving God. When you see fifty men change their course from bad to good, that is your consolation.

I also served as auxiliary to serve the candidates and I devote three days and three nights to serve them. And we also go out to Mañanita—that is, serenading the candidates in the early dawn. And when a Brother is about to fall out [go back to his old ways], we serenade him. During the birthday of a Brother or a Sister we also serenade them.

Q. Have you made any new friends in the past three years?

Yes, definitely. Being a Cursillista in the Retreat which we hold every year [you meet] Cursillistas from all walks of life. . . . It is such that it puts down barriers between people, knowing that both are Cursillistas. It seems to try to cultivate friendliness.

If you are in the Philippines and you are living in an apartment, for years you live together without knowing each other.

I think it is the belief that a Cursillista is reminded that he is not the only son of God. You become kinder to bitter people. It becomes inborn that without any pretensions you help your neighbors who need help.

Summary. It might be good at this point to stand back and try to summarize what we have advanced as the effects of the Cursillo. At the personal level, people who go through the Cursillo feel changed by it, changed to such an extent that it stands out in their mind when someone asks them an open-ended question two years later. In general, they become more friendly, less aloof, and more understanding of others, and this change is noticed by the people around them. They meet people and make new friends after the Cursillo, and form groups whose bond is the Cursillo experience. As a rule, individuals are active after their Cursillo—they identify more with the Church and they get involved in a good number of Church-connected projects. They are conscious of the poor, it seems, though some of them perhaps feel a bit pressured when they are asked to give something to the poor.

A General Description

Having examined the effects, it might be worthwhile at this point to take a closer look at the cause of these effects—the Cursillo itself. The Cursillo is described as a "Little Course in Christianity" and it consists of a rigid, fairly exhausting program of activities which lasts for four nights and three days. Bishop Hervas (1954) wrote a rather detailed manual for those conducting Cursillos in which he insisted strongly that his directions be followed, and that the people do not try to "improve" the Cursillo with innovations. The ecclesiastical authorities seem to agree with Bishop Hervas on this point, and have very often stressed fidelity to the rules of the latter. However, the Cursillo is a nation-wide phenomenon, and there are probably small but real differences between Cursillos given in different dioceses, depending on how closely the Cursillo staff follows the directions in the *Leaders' Manual.*

Despite these differences, however, the Cursillo follows the same general pattern whenever it is held, and it is this pattern which we shall describe briefly. People about to make a Cursillo arrive at the Cursillo house at about six in the evening. When they arrive, their things pass into the care of the staff, and friends who are making the Cursillo together are separated.

On the first night, there is an introductory talk given by the layman who is the rector of the Cursillo, followed by a "Spiritiual Retreat," given by the spiritual director, a priest. For the only time during the Cursillo, the participants are asked to keep silence until the following morning. Before retiring, the participants kneel in the dormitory and say the rosary, accompanied by the staff.

At breakfast the following day and at all the other meals, the auxiliaries sing Cursillo songs as the participants eat, and there follows a session of joke telling when the meal is finished. During the day, there are five talks, each followed by a discussion period during which the participants are supposed to prepare a written summary of what each speaker has said. In the breaks between talks, the participants learn the Cursillo songs and dances.

In the afternoon, the participants receive the famous *palancas*, letters of encouragement and support from family, friends, and even from strangers. In the evening, each group, or *decuria*, of participants presents a summary of one of the talks to the whole group, amid much laughter and applause, after which the participants say their night prayers together and then retire.

The pattern for the second day is much the same: singing and jokes at meals, five lectures followed by discussion, the presentation of summaries in the evening, rosary together in the dormitory, and then to bed. On this day, however, the participants also make two visits to the Blessed Sacrament, during which they are encouraged to follow the promptings of their hearts and to pray out loud if they so desire.

The third day follows the same round of five lectures, with singing and joking at meal time. During one of the talks, "service sheets" are given out to the participants, and each person has the opportunity to write down just which prayers, pious practices, and good works he wants to perform after the Cursillo. He also signs a promise to walk in the company of Christ.

In the evening, at the *clausura*, a final discussion, the participants have a chance to tell the whole group what they have learned from the Cursillo, and also, if they so desire, what they will do after the Cursillo. Following this, there is the closing ceremony which consists of prayers and benediction in the chapel, after which the new Cursillistas are embraced by their Cursillo brothers amid much singing and shouting.

The description presented just now is but a rough outline of the Cursillo, which probably has to be experienced in order to be really understood or appreciated. The Cursillo is a time when the ordinary boundaries of human living are transcended. There is about it an intensity of experience and feeling from which most people are simply sheltered in ordinary life. And this intensity extends across the whole range of experience: from sorrow to joy, from agony and conflict to peace and something close to complete happiness.

A Tentative Explanation

Difficult as it is to describe the Cursillo, that task is infinitely easier than trying to explain it, which is what we shall attempt to do in the following pages. We shall offer a very tentative answer to the question of what makes the Cursillo work, in the hope that its insufficiencies and doubtful points will prompt others to investigate further and perhaps arrive at a more complete explanation.

However, until such an explanation appears, we would offer the following hypothesis to explain the success of the Cursillo. There is no single factor that makes it effective; its effectiveness in changing attitudes and behavior is the result of a complex interaction of many factors. These factors we shall proceed to examine individually.

Perhaps the first thing a participant notices in the Cursillo is that the people who are running it, the rector, the spiritual director, the lay auxiliaries, are all very friendly. They carry his bag, they wait on him at table, they sing for him at table, they lead the whole group in joking, singing, and dancing. The natural reaction of the participants to this friendly atmosphere is, in most cases, a positive one—a participant feels that he would be happy if he belonged to this group.

One might ask how having a positive feeling toward a certain group leads to a change of attitude or a change in life. The answer is not too far-fetched. Social psychologists have found that if a person wants to become a member of a group, he tends to adopt the attitudes prevailing in that group. If the group's attitudes are different from his own, he tends to change his attitudes, making them more in line with those of the group.

The group discussion following each of the lectures was noted earlier. This particular method has been found to be more conducive to attitude change than the straight-lecture method, especially if the speaker is trying to persuade his audience to do something new or something against which they have a bias.

Group discussion is effective because it is not simply a rational process where people present ideas for or against a certain topic. In a discussion, people also express their feelings—their fears, hopes, and desires. If it is simply a person's feelings which prevent him from trying something new, then giving vent to these feelings in a discussion seems to have a liberating effect. Once the feelings are expressed, they no longer inhibit change.

One particular feeling which seems to hold very many people back from living an intense Christian life is the fear of being different—they are afraid of being non-conformists. For example, if a man sees that most men do not take their religion seriously, it is only natural for him to be a bit reluctant to take it seriously himself, for fear of what others might say or think.

In the Cursillo, the situation is reversed. All of the speakers and the whole Cursillo staff are seen to be men who are really serious Christians. The participant feels, though he might not be able to put it into words, that to remain as he is, not to change, would mean being a non-conformist ina group

of men whom he respects and whose friendship he would appreciate. The desire to conform which in most cases leads men to be poorer Christians, could, in this case, lead them to be better Christians.

At a strategic point in the Cursillo, the participants go to the chapel for a visit to the Blessed Sacrament, the believed presence of Jesus Christ in the form of a consecrated host at the altar. They are asked to pray out loud to Christ, to ask forgiveness, and to follow the promptings of their heart. Most, if not all, of the participants do so, though all that can be heard at this time is a babble of voices.

Later on, the "service sheets" are distributed, as was mentioned earlier. These sheets contain lists of prayers, works of devotion, and apostolic works, and the participant is expected to fill them out, more or less promising to say certain prayers and perform certain actions each week and indicating these.

The point in both of these cases is that the participant commits himself; in the first case, during the visit to the Blessed Sacrament, he does so in a quasi-public way. He is not permitted to be merely a passive listener; he is asked to make a decision either one way or the other. Once the person takes a definite stand, he is much more likely to abide by it. Apparently, the thinking of Bishop Hervas and his followers is that after a vocal and written commitment of this type, a person is much less likely to fall back into his old ways. On this point, the research on commitment and attitude change confirms their opinion.

When one person tries to persuade another, a great deal depends on the person who is doing the persuading. The characteristics of the speaker are at least as important as that which he actually says, if not more so. Investigators have come to the conclusion that three qualities are necessary in a person if he is to convince a group of people to do something: He must be attractive, he must be credible, and he must be seen by the group he is addressing as one of them. The extensive use of laymen in the Cursillo—they give ten of the 15 talks—and the effectiveness of this practice serve only to reinforce this conclusion.

Very often a Cursillo speaker may be saying exactly the same thing which the nuns in school, the teachers in college, and the priest in church have been saying for years. The point is, a layman can be identified by his audience as one of them, while religious and priests are somehow different. It might be that the average person feels that it is the job of the priest to preach and to exhort, and so the latter can be ignored quite comfortably. At any rate, when a mature, successful layman speaks during the Cursillo, his words have an authority and a credibility which cannot be easily ignored.

Perhaps a further reason for the effectiveness of the lay speakers is that at certain points in the Cursillo they are asked to speak honestly of their own efforts at living a Christian life. What they say at these times is intensely personal—an old man telling how he tried for many years to build a chapel in

his town, a young man relating how he cursed God after one of his children grew terribly sick and how he finally came back to God. Each speaker tells his story in his own way.

In the face of such honesty and openness, a participant is almost completely disarmed. If he reflects upon himself after such a talk, he cannot help but see that some things in his life should be changed—and the success of others makes him more willing to try.

The honest witness of the speakers in the Cursillo, their willingness to talk of their own personal lives, accomplishes a most difficult thing: It makes a person aware of his own shortcomings in a way that does not threaten him. Most people are not aware of their own defects. If these defects are pointed out to them, their natural tendency is to deny and reject such "criticism," even if it is true and offered with good intentions. The most widely accepted psychological explanation for this tendency is that the person feels threatened, he feels that in some way or other his "self" is being attacked. To change would be to admit that his "self" is unworthy and to accept defeat.

The policy of the Cursillo speaker, however, is exactly the opposite of an attack. By speaking honestly of his own experience, by admitting that he himself has been unworthy, he actually lowers his own defenses, removing the barriers which shield him from the possibly hostile inspection of others. The fact that he can do this seems to give the participants in the Cursillo the courage to do it themselves.

There have been many explanations offered for the success of the Cursillo. However, one explanation which would appeal to the psychologist may have been overlooked because it is so simple. Many people dislike religion or the Catholic Church not because of any "essential" reasons, but for seemingly "accidental" ones. A whole host of unpleasant things have been associated with the Catholic religion: crowded, uncomfortable churches, a dark, black box for Confession, a priest criticizing people for their faults and then asking for money, a general atmosphere filled with discipline, gloom, and the fear of hell.

In many people, these things have come to be associated with religion through some kind of conditioning process. The Cursillo seems to replace these unpleasant associations with a very different set of pleasant associations. The atmosphere of service and joy has already been mentioned. In addition to this, there are the palanca letters. Reading these letters from his wife, his children, and his friends, with all their expressions of love, support, and understanding is a moving, intensely beautiful experience. When joys such as these come to be associated with living up to the Christian ideal, the strength of the old associations may be reduced.

One final factor which could have something to do with the effectiveness of the Cursillo is the use of primary groups. A primary group is two or more persons in intimate, face-to-face interaction. Such groups play a very strong

part in the explanation of human behavior for the simple reason that the opinions of those who are close to a man mean a great deal to him. When the Cursillo is over, the participant is asked to join a Cursillo team in his own parish. The team is supposed to meet each week and discuss how each member has been living up to the promises he made on his service sheet during the Cursillo.

This primary group contributes a great deal to preventing the Cursillista from falling back into his old way of life. Naturally, each member of the team feels within him a desire not to disappoint his teammates or to lose respect in their eyes by not keeping his bargain. At the same time, the group is there to provide support and encouragement to a member when he encounters problems and feels like giving up. In the words of a popular song, "he gets by with a little help from his friends."

That then is our hypothesis as to what makes the Cursillo work. There is no one "secret" behind the Cursillo's effectiveness; the answer is to be found in the interaction of many factors: the use of laymen, the use of personal testimony with all its disarming consequences, the palancas and the friendly atmosphere which make being a Cursillista seem a very attractive thing, the fact that a participant has to take a stand, and the use of primary groups. The combined effect of these factors must be experienced before one realizes what a tremendous impact they can have.

Before we end our discussion, a few final comments might be in order. At the time of their interview, it was about two years since the majority of the respondents in our sample had made the Cursillo. Given this, we have been unable to say very much about how long the effects of the Cursillo last. Our study indicates that they are detectable for at least two years after the Cursillo, but we have no evidence either way as to how long they do last.

In this matter, however, one should be reasonable. It is not especially realistic to expect a person to keep going forever because of an experience which lasted four nights and three days. Whether or not a Cursillista continues in his good resolutions does not depend so much on the Cursillo he made as it does on his experiences with the Church after his Cursillo. The problem of the perseverance of the Cursillista is not a problem of the Cursillo; it is a problem of the whole Church and the society in which the Cursillista lives.

It is not within the scope of this paper or the competence of the writer to pass any judgments on the phenomenon which is under consideration. However, there are certain ethical and moral issues which are intimately bound up with the Cursillo, and which should not be ignored.

For one thing, there seems to be an expectation that everyone who makes a Cursillo should go to Confession. If, for any reason, a person does not want to receive the Church's sacraments, or rites which renew spiritual life, then the whole Cursillo begins to look alarmingly like an experiment in group pressure. Apparently, most people who enter the Cursillo are fairly good Catholics and

do not have deep-seated objections to the sacraments; thus they feel no pressure at all. However, there does seem to be the danger of really forcing a few to go along with the rest.

One other point would be the matter of having people commit themselves to do things in a state of high emotional exaltation. How justified this is, and how much respect it shows for the principle of freedom of the individual conscience is a matter which deserves serious consideration.

As one looks at the Cursillo and at the social movement which it has started, he can see many things. The Cursillo is based on a rather deep knowledge of human nature, and seems to have a tremendous potential, perhaps greater than most people realize. It is itself a human institution and is, for that reason, quite complicated. Such a study as this may give some idea of the effects of the Cursillo and the forces at work; but the full picture of the effect of the Cursillo on the Philippines will probably be given, not by the psychologist or the sociologist, but by the historian with the passage of time.

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APPENDIX A

Interview Schedule

1. Do you now belong to any clubs, societies, or organizations? (What organizations?)
   (a) When did you join?
   (b) What office, if any, have you held in the organization?
   (c) How often does it meet?
   (d) How often do you attend meetings?
   (e) When was the last time you attended a meeting?
   (f) What are the activities of this organization?
   (g) Are you more active now than you were three years ago?
   [If yes] Is there any reason for the change? Can you point to any particular time or event which made you more active?
   (h) Has your group started any new activities in the last three years?
   (i) Whose idea was this (were these) new activities?
2. Are you now engaged in any activities which have no connections with either the organization or your job? (For example, a singing group, a basketball team, hospital visitation, etc.)
   (a) How long have you been engaged in this activity?
   (b) How much time a week or a month do you spend in this activity?
   (c) Are you more active now than you were three years ago?
   [If yes] Is there any reason for this change? Can you point to any particular time or event which made you more active?
   (d) Has your group started any new activities?
   (e) Whose idea was this (were these) new activities?
3. Who would you say benefits most from all the activities, both the ones which you do in the organization and the ones which you do on your own?
4. Have you made any new friends in the past three years aside from the people you meet at work? How did you meet them? Can you give the initials of some of these people? On this card I have a picture of a ladder which has six rungs.

   1 Upper-upper class
   2 Lower-upper class
   3 Upper-middle class
   4 Lower-middle class
   5 Upper-lower class
   6 Lower-lower class

Suppose we say that the most important and influential of the people in your community are on the top and the least important and influential are on the bottom. Where on the ladder would you put yourself? Where would you put your friends?

5. (a) Has your family mentioned any changes in you, in the way you act, over the last three years?
   (b) What about your friends?
   (c) The people you work with?
   (d) [If yes] What sort of changes were mentioned by these people?

6. (a) Have there been any changes in your attitude toward your fellow men over the past three years?
   (b) Toward your friends?
   (c) Toward your fellow workers?
   (d) Could you explain these changes?

7. (a) Has your opinion about the Catholic religion, either in its teachings or in its practices or in anything at all, changed in the last three years?
   (b) [If yes] Why?

8. If you have made the Cursillo, could you give the following information:

   Cursillo Number: .....

   Place: .....

   Date: .....

APPENDIX B

Table 10

CFM respondents classified by age, crossclassified by Cursillo membership status.

Age	Cursillo membership status		Total
	Cursillista	Non-Cursillista	
25–29	1 (3·8%)	0 (0·0%)	1
30–34	4 (15%)	2 (12·5%)	6
35–39	3 (11%)	3 (18·7%)	6
40–44	6 (23%)	7 (43·7%)	13
45–49	3 (11%)	3 (18·7%)	6
50–54	4 (15%)	1 (6·2%)	5
55–59	3 (11%)	0 (0·0 %)	3
60 and above	2 (7·7%)	0 (0·0%)	2
TOTAL	26	16	42

Table 11

CFM respondents classified by occupation, crossclassified by Cursillo membership status.

Occupation	Cursillo membership status		Total
	Cursillista	Non-Cursillista	
Manual worker (laborer, driver)	0 (0·0%)	2 (11·7%)	2
Clerical worker (employee, secretary)	5 (19%)	1 (5·8%)	6
Business (self-employed)	2 (7·7%)	5 (29%)	7
Supervisory position (business manager, sales manager)	2 (7·7%)	2 (11·7%)	4
Technical worker (electrical technician)	0 (0·0%)	1 (5·8%)	1
Politician (government position)	0 (0·0%)	0 (0·0%)	0

Table 11 (continued)

Occupation	*Cursillo membership status*		*Total*
	Cursillista	*Non-Cursillista*	
Professional (lawyer, engineer)	15 (57·7%)	5 (29%)	20
Other	2 (7·7%)	1 (5·8%)	3
TOTAL	26	17	43

Table 12

CFM respondents classified by educational attainment, crossclassified by Cursillo membership status.

Educational attainment	*Cursillo membership status*		*Total*
	Cursillista	*Non-Cursillista*	
Partial elementary	0 (0·0%)	1 (5·8%)	1
Completed elementary	0 (0·0%)	0 (0·0%)	0
Partial high school	0 (0·0%)	3 (17%)	3
Completed high school	0 (0·0%)	2 (11·7%)	2
Partial college	2 (8%)	2 (11·7%)	4
Completed college	10 (4%)	7 (41%)	17
Partial post-graduate	2 (8%)	1 (5·8%)	3
Completed post-graduate	11 (44%)	1 (5·8%)	12
TOTAL	25	17	42

Cultural Differences in Performance in Communication Networks among Filipino, African, and American Students*

A. Paul Hare

Communication Networks

Problems connected with the relaying and receiving of information which arise in large bureaucracies have led behavioral scientists to experiment with communication networks, or the channels through which information is passed from one individual to another. Particularly active in this research have been small-group specialists who have studied such network types as the "circle," the "chain," the "Y," and the "wheel." Figure 1 illustrates the information channels and positions of members in these four different communication networks. Here, each line represents a two-way linkage; that is, each individual can either be a receiver of information or a sender.

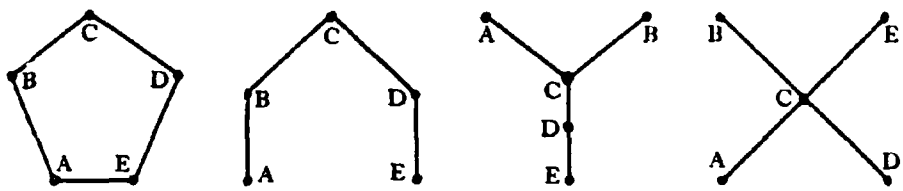

FIG. 1. *Four types of communication network*[1]

A study of the different networks would reveal that the greatest number of two-way links exist in the circle network. At the same time, the circle network is devoid of a central figure, or an individual who is in the position closest to all the other positions; this figure, who appears as C in the wheel, chain, and Y, is most dominant in the wheel. The effects of these two factors—informa-

* The research on which this paper is based was part of the Ateneo-Penn State Basic Research Program, sponsored by the United States Office of Naval Research, with The Pennsylvania State University as prime contractor (Nonr-656 [37]). The author would like to express his gratitude to Drs. George Guthrie and Frank Lynch for their support. He would likewise wish to thank Rachel T. Hare and Lindsley Williams for serving as research assistants in various phases of the research. The results of the Nigerian experiment were presented as a paper at the meetings of the Eastern Sociological Society in Philadelphia, Pennsylvania, in April 1966.

[1] Adapted from Hare 1962: 240.

tion linkage and centrality of position—on the performance of network subjects involved in problem-solving tasks have been the subject of past research, as well as of the present study.

Leavitt's experiment. Experimenting with these four types of network, Leavitt (1951) found that subjects involved in the wheel network solved a relatively simple problem faster than those in the circle, and reported the emergence of a leader more often than the latter. On the other hand, those in the circle were more equally satisfied with their positions than were those in the other networks; in the Y, wheel, and chain, the members at the peripheral positions enjoyed their work less than those in the central position.[8] Summing up his results, Leavitt (1951:46) says:

> . . . the circle, one extreme, is active, leaderless, unorganized, erratic, and yet is enjoyed by its members. The wheel, at the other extreme, has a distinct leader, is well and stably organized, is less erratic, and yet is unsatisfying to most of its members.

With regard to the emergence of a leader, a later experiment by Hirota (1953) with groups of Japanese subjects established that the central figure becomes the leader in the chain, Y, and wheel. Other researchers following Leavitt have concerned themselves with such objectives as finding out how more complex problem-solving affects performance in the different networks (Shaw 1954), the speed of adaptation of subjects from one network to another (Smith 1951), and the effects of "noise," or irrelevant information, on subjects in different networks (Heise and Miller 1951).

The Present Study

Background

Before I arrived in Africa in 1964, I had assumed that all possible variations of the Leavitt experiment had already been performed and that one more study would hardly contribute anything new to our understanding of behavior in this particular research setting. For several years I had used one version of the experiment as a classroom demonstration in introductory-sociology classes. Usually I compared four-man groups in the wheel and circle networks, assigning the subjects the same task of "finding the common symbol" and employing the same set of symbols which Leavitt had used. Usually, only three trials in each network were necessary to show most of the effects of learning which Leavitt had shown after over 15 trials. Sometimes I ran different groups in the wheel and the circle and sometimes used the same groups,

[8] In the experiment, subjects were separated from each other by partitions, and communication was limited to the passing of notes through mail chutes built into the partitions. The task of the five members of a network was to find out which of six possible symbols they held in common.

changing the network after the first three trials from wheel to circle, or circle to wheel. Aside from an increase in speed and a reduction of the number of messages sent in the second three trials—a result of increased familiarity with the task—the findings were always the same as those found in the many published studies (Glanzer and Glaser 1961; Hare 1962). I also obtained the same results with groups of high-school students when the experiment was used as a demonstration of the laboratory technique in social science.

Since the results of the experiment seemed so predictable, I decided to use the experiment as a demonstration in an introductory-sociology course and in advanced social-psychology courses that I was giving at Makerere University College in Uganda, Africa. In three different classes, I asked four volunteers to solve three problems in the wheel network and four more volunteers to solve three problems in the circle network. Contrary to my expectations, the students in the wheel network took much longer to solve the problems than those in the circle network. The person in the middle of the wheel seemed especially harassed as messages poured in from the other group members. Under stress he seemed to have difficulty piecing together the bits of information in order to find the missing symbol. Each individual in the circle network, on the other hand, apparently solved the problem without this difficulty. The unexpected results in the wheel network raised several questions for research. Was the task more difficult for African students, especially under stress? Were African students less accustomed to taking the central role in a cooperative problem-solving group? Was there something unusual about this task in a culture different from American culture? Since I was only visiting Makerere for one term, I had to wait until I reached Nigeria, where I lectured for three terms, before it was possible to do a formal experiment which might establish the significance of the differences I had observed between American and African groups.

The Nigerian communication-network experiment

Method. Although the University of Ibadan was a national university, few students from the Northern Region were enrolled there. As a result, the student body, numbering about 2500, consisted primarily of members of two tribes, the Yoruba and the Ibo. In cultural background, the Yoruba are said to be more "authoritarian," and the Ibo more "democratic" (LeVine 1966). Therefore, I predicted that the Yoruba would be more at home in the wheel network, and the Ibo in the circle network. If the Makerere experience proved to be typical, members of both tribes might be expected to send more messages and to take more time to solve the problems than the American groups. Between them, however, Yoruba should be most efficient in the wheel and the Ibo in the circle.

To test these hypotheses, I recruited volunteers by having it announced in various university classes that Yoruba and Ibo students would be paid ten shillings for participating in a two-hour experiment. Four groups—each group made up of four students—were tested at one time; of these four, two groups were Yoruba and two, Ibo. One group of each tribe had three trials in the wheel network, followed by three trials in the circle. The other group had three trials in the circle followed by three trials in the wheel. Thus there were four experimental conditions: *Yoruba wheel first*, *Ibo wheel first*, *Yoruba circle first*, and *Ibo circle first*. After each set of three trials, the subjects were given a short questionnaire asking them to do the following: (a) indicate who the leader of the group was, if there was one, (b) draw a sketch of the communication network of the group (this was intended to check if subjects were using only those communication channels which they were allowed to use), and (c) indicate how satisfied they were with their position, using a 100-point scale.[3] After the experiment, each subject filled out a social-background questionnaire, an attitude scale measuring "autonomy," and a Conditional Personality Test.[4]

To keep track of the originator of each message, I gave each subject a pen with colored ink and called him throughout the experiment by the color of ink in his pen. Thus, the members of each group were Mr. Blue, Mr. Red Mr. Black, and Mr. Green. As a holdover from my practice with American groups, I placed Mr. Red in the center of the wheel network. It was only halfway through the experiment that I discovered that the color red was, unfortunately, associated with blood and death in Nigeria. If one believed in *ju ju*, or sorcery, and wished some ill to befall someone, he would write notes to him in red ink. I therefore felt that having Mr. Red as the central member in the wheel might raise some unintended conflicts in the minds of the other subjects. A cultural anthropologist on the project staff informed me that the color blue had no negative cultural connotations and that actually there was no word for blue in the Yoruba language. So halfway through the experiment, I shifted the central man to "blue." In summarizing the data, I have added the figures for comparable positions. Thus the data for subjects who were on the right, the left, and opposite Red for the first five sets of groups are added to those on the right, left, and opposite Blue in the last five sets of groups.

[3] This was the same question Leavitt (1951) asked at the conclusion of his experiment.

[4] Autonomy may be defined here as that personality trait which manifests any of the following qualities: resistance to influence or coercion, independent-mindedness and striving for independence, seeking of freedom (in a new location). It may even manifest itself at times as defiance of authority. Papers discussing the autonomy scale have been presented by A. Paul Hare and Rachel T. Hare (1968, 1969) and A. Paul Hare and Dean Peabody (1968). The Conditional Personality Test is a new type of test which asks subjects to indicate how they would react if another person with specific social and personal characteristics were with them in the discussion group. The data on this test have not yet been published.

In all, there were 10 groups in each set, or 40 groups. Throughout the experiment, two groups at each run were monitored by me and the other two by either of two research assistants.

After the experiment was finished, two more groups were run to replace two whose performance seemed too different from the usual to be included in the sample. In one of the latter, a student who was under psychiatric treatment had been assigned the central position. Four out of the six trials for this group had to be stopped by the experimenter since this student could not solve the problems, either in the wheel or in the circle. In the other group, the members used all channels of communication instead of limiting themselves to a wheel network. Both of these groups were Ibo, circle first.

Results. The average number of messages sent by the subjects in each position, the time spent on each trial, and the average satisfaction after the third and sixth trials for Yoruba and Ibo in the wheel-first combination are given in Tables 1, 2, 3, and 4.

Table 1

Average number of messages sent by Yoruba groups (10 in all) in wheel-first communication-network experiment, classified by network and trial, crossclassified by group member.

Network	Trial	Group member					Time (minutes)
		Blue	Red	Black	Green	Total	
Wheel	1	20·4	9·3	8·1	9·1	46·9	14·6
	2	15·3	6·3	5·1	6·3	33·0	8·7
	3	13·5	5·6	4·8	4·7	28·6	6·3
Circle	4	7·9	7·2	7·7	7·7	30·5	5·3
	5	8·9	7·3	8·2	7·9	32·3	4·5
	6	8·3	8·4	8·0	8·1	32·8	4·4

Table 2

Average satisfaction scores of Yoruba groups (10 in all) in wheel-first communication-network experiment, classified by network, crossclassified by group member.

Network	Group member			
	Blue	Red	Black	Green
Wheel	93·9	63·9	69·2	85·0
Circle	82·2	82·9	83·1	92·4

Table 3

Average number of messages sent by Ibo groups (10 in all) in wheel-first communication-network experiment, classified by network and trial, crossclassified by group member.

Network	Trial	Group member					Time (minutes)
		Blue	Red	Black	Green	Total	
Wheel	1	16·6	7·1	6·0	5·6	35·3	10·8
	2	11·3	4·2	3·4	3·4	22·3	6·8
	3	9·9	3·4	3·4	3·5	20·2	4·6
Circle	4	8·6	8·4	7·3	8·2	32·5	5·5
	5	7·7	6·9	7·2	7·2	29·0	3·9
	6	7·8	7·0	6·4	7·8	29·0	3·8

Table 4

Average satisfaction scores of Ibo groups (10 in all) in wheel-first communication-network experiment, classified by network, crossclassified by group member.

Network	Group member			
	Blue	Red	Black	Green
Wheel	90·8	77·5	76·1	67·3
Circle	77·9	89·5	91·4	85·9

With three exceptions (Blue, Red, and Green on trial four) the average Yoruba in each position sends *more* messages in each trial than the average Ibo. While the differences taken one position at a time are not significant, there is a significant difference between the totals of the number of messages sent for trials one through three.[5] That the Yoruba would send more messages than the Ibo was contrary to my expectations.

The Yoruba also take more time on each trial.[6] In terms of satisfaction with position, the differences between Yoruba and Ibo are not significant, and the man in the center of the wheel, Blue, is the most satisfied in each case, as we would expect. Blue, as expected, also sends more messages in the wheel, thus reconfirming the generalization that the person who does the most communicating (and has the most control) is the most satisfied.[7]

The results of the circle-first version of the experiment (see Tables 5, 6, 7, and 8) also indicate that the man in the center of the wheel sends the most messages

[5] At the ·02 level, two-tailed test.

[6] While trial-by-trial differences in length of time are not significant, the difference between the total time of the Yoruba for the first three trials and that of the Ibo is significant at the ·05 level.

[7] In all eleven samples Blue is the most satisfied. This result is statistically significant at the ·05 level at least, using the sign test.

and is the most satisfied. However, there are no significant differences between Yoruba and Ibo in the wheel network. Apparently the Yoruba do not send more messages in the wheel when the task has first been learned in the circle.

There are no significant differences between Yoruba and Ibo in the circle network. Thus, contrary to what we had expected, the more democratic Ibo did not perform better in the circle.

Table 5

Average number of messages sent by Yoruba groups (10 in all) in circle-first communication-network experiment, classified by network and trial, crossclassified by group member.

Network	*Trial*	*Group member*					*Time (minutes)*
		Blue	*Red*	*Black*	*Green*	*Total*	
Circle	1	9·1	7·8	8·1	8·6	33·6	7·1
	2	5·8	5·8	6·5	6·7	24·8	4·4
	3	6·3	5·9	6·3	6·5	25·0	4·0
Wheel	4	11·5	4·7	4·1	4·9	25·2	6·9
	5	8·9	3·5	3·0	3·7	19·1	4·9
	6	9·7	3·6	3·1	3·4	19·8	5·3

Table 6

Average satisfaction scores of Yoruba groups (10 in all) in circle-first communication-network experiment, classified by network, crossclassified by group member.

Network	*Group member*			
	Blue	*Red*	*Black*	*Green*
Circle	89·8	82·4	87·9	84·7
Wheel	88·0	85·0	76·4	78·7

Table 7

Average number of messages sent by Ibo groups (10 in all) in circle-first communication-network experiment, classified by network and trial, crossclassified by group member.

Network	*Trial*	*Group member*					*Time (minutes)*
		Blue	*Red*	*Black*	*Green*	*Total*	
Circle	1	9·7	10·2	8·2	8·3	36·4	10·1
	2	6·6	6·6	6·3	6·6	26·1	5·0
	3	5·7	5·8	5·8	5·5	22·8	4·5
Wheel	4	12·6	5·2	4·1	4·3	26·2	8·0
	5	9·2	2·7	2·8	3·2	17·9	4·9
	6	9·0	2·4	2·7	3·4	17·5	4·8

Table 8

Average satisfaction scores of Ibo groups (10 in all) in circle-first communication-network experiment, classified by network, crossclassified by group member.

Network	Group member			
	Blue	*Red*	*Black*	*Green*
Circle	83·3	85·7	87·2	83·9
Wheel	91·8	75·1	75·5	81·1

The American communication-network experiment

Method. To provide a comparable set of data for the wheel-first version of the experiment for Americans, nine groups of students in the introductory-sociology course at Haverford College were run through the experiment after my return to the United States. All nine groups were in the room at the same time. I was assisted in monitoring the groups by two sociology majors who had participated in the experiment earlier. The instructions and materials for the American groups were the same as those for the Nigerian groups. This time Blue was in the center of the wheel for all groups.

Results. The results, given in Tables 9 and 10 show that in all positions the Haverford students send significantly fewer messages, take less time per trial, and are less satisfied with the non-central positions in the wheel. They also tend to give lower satisfaction ratings in the circle.

There were existing data for American students for the circle-first version. In 1960 I had run 15 groups of introductory-sociology students, first for three trials in the circle, followed by two trials in the wheel (see Tables 11 and 12). Though there were only two trials in the wheel, most of the groups had approached the "ideal" pattern of three messages relayed to the center with informa-

Table 9

Average number of messages sent by Haverford groups (9 in all) in wheel-first communication-network experiment, classified by network and trial, crossclassified by group member.

Network	Trial	Group member					Time (minutes)
		Blue	*Red*	*Black*	*Green*	*Total*	
Wheel	1	8·7	3·1	2·5	3·0	17·3	3·4
	2	5·8	1·7	1·3	1·4	10·2	3·4
	3	5·2	1·4	1·0	1·6	9·2	1·7
Circle	4	3·7	4·0	4·4	4·2	16·3	1·8
	5	3·8	3·4	4·1	3·9	15·2	1·1
	6	3·4	3·6	3·6	4·0	14·6	1·1

tion, and three messages sent back with the answer by the second trial. The differences between these groups and the Nigerians in the same experimental condition are significant.

Table 10

Average satisfaction scores of Haverford groups (9 in all) in wheel-first communication-network experiment, classified by network, crossclassified by group member.

Network	*Group member*			
	Blue	*Red*	*Black*	*Green*
Wheel	89·8	38·8	16·1	30·2
Circle	72·6	73·3	63·7	53·3

Table 11

Average number of messages sent by Haverford groups (15 in all) in circle-first communication-network experiment, classified by network and trial, crossclassified by group member.

Network	*Trial*	*Group member*					*Time (minutes)*
		Blue	*Red*	*Black*	*Green*	*Total*	
Circle	1	6·0	5·9	5·7	5·5	23·1	3·5
	2	4·4	4·4	4·5	4·6	17·9	2·3
	3	3·7	3·8	4·1	3·8	15·4	1·5
Wheel	4	6·4	1·7	2·3	2·7	13·1	1·9
	5	4·3	1·1	1·9	1·8	9·3	1·0

Table 12

Average satisfaction scores of Haverford groups (15 in all) in circle-first communication-network experiment, classified by network, crossclassified by group member.

Network	*Group member*			
	Blue	*Red*	*Black*	*Green*
Circle	75·5	80·4	76·7	79·7
Wheel	87·7	62·3	61·7	66·0

The South African communication-network experiment

Method. In 1965 I conducted the communication-network experiment with groups of sociology and anthropology students at the University of Cape Town, South Africa. Three groups of four persons each were run in the wheel and four groups in the circle. I then left Africa and the following year, when I returned, I was able to run a larger number of groups in both the wheel and

the circle. In the 1965 experiment, some of the groups were mixed, that is, they contained both men and women. In the 1966 experiment, each group was composed of either men alone or women alone. The results were very similar. As an example, only the groups from the second experiment are reported here (see Tables 13 and 14 for males and Tables 15 and 16 for females).

Results. All of the subjects in the Cape Town experiment had a European cultural background. Although both men and women sent more messages in both the wheel and the circle networks than the Haverford groups, their pattern of activity is clearly more like that of the American groups than that of the Nigerian groups.[8] Since the pattern of activity of groups in East Africa is similar to the pattern of those in Nigeria, and since the pattern of groups in South Africa approximates the American pattern, the variation in performance would appear to spring from differences between "Bantu" and "Western" cultures, rather than from simply living on the continent of Africa. This conclusion will be discussed in more detail below, after we first consider the data from the Philippine experiment.

Table 13

Average number of messages sent by Cape Town male *groups in communication-network experiment, classified by network and trial, crossclassified by group member.*

Network	*Trial*	*Group member*					*Time (minutes)*
		Blue	*Red*	*Black*	*Green*	*Total*	
Wheel	1	11·2	3·8	4·2	6·0	25·2	5·8
(N = 5)	2	5·2	1·8	1·8	2·8	11·6	2·6
	3	4·0	1·2	1·4	2·0	8·6	1·8
Circle	1	3·4	6·6	6·6	5·2	21·4	4·7
(N = 5)	2	3·8	7·4	7·2	6·4	24·4	2·9
	3	4·8	6·6	5·6	6·6	23·6	4·5

Table 14

Average satisfaction scores of Cape Town male *groups in communication-network experiment, classified by network, crossclassified by group member.*

Network	*Group member*			
	Blue	*Red*	*Black*	*Green*
Wheel (N = 5)	96·0	28·0	18·0	31·0
Circle (N = 5)	60·0	66·0	74·0	60·0

[8] For the total number of messages sent on trials one through three in the wheel, the differences are significant at least at the ·05 level.

Table 15

Average number of messages sent by Cape Town female *groups in communication-network experiment, classified by network and trial, crossclassified by group member.*

Network	Trial	Group member					Time (minutes)
		Blue	Red	Black	Green	Total	
Wheel	1	10·3	4·2	3·3	3·0	20·8	5·4
(N = 6)	2	7·3	2·3	1·8	1·8	13·3	4·7
	3	5·7	2·2	1·8	1·7	11·3	2·3
Circle	1	7·2	7·1	7·1	7·1	28·9	4·6
(N = 7)	2	5·0	6·9	3·9	5·7	22·1	2·6
	3	5·1	5·3	6·4	4·4	21·3	1·7

Table 16

Average satisfaction scores of Cape Town female *groups in communication-network experiment, classified by network, cross-classified by group member.*

Network	Group member			
	Blue	Red	Black	Green
Wheel (N = 6)	81·7	43·3	35·0	31·7
Circle (N = 7)	70·0	60·0	77·1	70·1

The Philippine communication-network experiment

Method. The communication experiment in the Philippines was conducted at three Catholic colleges. Filipino college students tend to be younger than their American counterparts since many go directly from grade school to a four-year high school. In the provinces there is typically no junior high school with seventh and eighth grades. At the Ateneo de Manila University in Manila, almost all the students were Catholic and their parents were members of the wealthiest business and professional classes. Students from the two provincial colleges in Zamboanga and Jolo were from families with less means. At the Ateneo de Zamboanga in Zamboanga, on the southern island of Mindanao, the students were either Christians or Muslims, while at the Notre Dame of Jolo in Jolo, an island in the Sulu sea, the students were predominantly Muslim in religious background. All of the subjects were male.

At each college some groups were run in the wheel and others in the circle. In each case the experiment took place in a large classroom, with all the groups participating at the same time. Several assistants were present, each supervising two groups, one wheel and one circle (see Tables 17, 18, 19, 20, 21, and 22).

Results. In their general pattern of interaction, the Philippine groups follow the "Western" style. Fewer messages are sent in the wheel than in the circle. The subjects in the circle are generally more satisfied than the non-central members of the wheel. The subject in the center of the wheel sends the most messages and is the most satisfied in his network. Although the students at the Ateneo de Manila appear to be faster in the wheel and to send fewer messages in the circle, the differences between the Manila, Zamboanga, and Jolo groups are not significant.

Table 17

Average number of messages sent by Ateneo de Manila (Filipino) groups in communication-network experiment, classified by network and trial, crossclassified by group member.

Network	*Trial*	*Group member*					*Time (minutes)*
		Blue	*Red*	*Black*	*Green*	*Total*	
Wheel	1	15·9	6·9	6·0	6·3	35·2	8·9
(N = 12)	2	9·4	3·6	3·1	3·3	19·4	4·1
	3	7·2	2·8	1·9	2·6	14·4	2·7
Circle	1	10·2	10·4	11·2	10·0	41·7	5·9
(N = 12)	2	7·7	7·9	7·2	7·0	29·8	3·3
	3	6·0	6·3	5·9	6·3	24·5	3·1

Table 18

Average satisfaction scores of Ateneo de Manila (Filipino) groups in communication-network experiment, classified by network, crossclassified by group member.

Network	*Group member*			
	Blue	*Red*	*Black*	*Green*
Wheel (N = 12)	89·3	87·8	69·3	69·1
Circle (N = 12)	95·4	95·8	97·3	89·2

Table 19

Average number of messages sent by Ateneo de Zamboanga (Filipino) groups in communication-network experiment, classified by network and trial, crossclassified by group member.

Network	Trial	Group member					Time (minutes)
		Blue	Red	Black	Green	Total	
Wheel	1	18·8	8·0	7·6	6·6	41·0	11·8
(N = 5)	2	11·2	3·6	3·2	4·0	22·0	4·8
	3	8·8	3·8	3·0	2·6	18·2	3·4
Circle	1	10·4	13·8	16·4	12·8	53·4	9·8
(N = 5)	2	7·0	5·8	8·4	6·8	28·0	4·0
	3	6·6	7·4	8·0	7·4	29·4	3·8

Table 20

Average satisfaction scores of Ateneo de Zamboanga (Filipino) groups in communication-network experiment, classified by network, crossclassified by group member.

Network	Group member			
	Blue	Red	Black	Green
Wheel (N = 5)	90·0	42·0	79·0	70·0
Circle (N = 5)	96·0	100·0	100·0	76·0

Table 21

Average number of messages sent by Notre Dame of Jolo (Filipino) groups in communication-network experiment, classified by network and trial, crossclassified by group member.

Network	Trial	Group member					Time (minutes)
		Blue	Red	Black	Green	Total	
Wheel	1	10·2	8·2	5·6	5·0	29·0	16·4
(N = 5)	2	8·4	5·2	2·8	4·0	20·4	7·4
	3	6·8	4·2	2·8	2·8	16·6	6·8
Circle	1	15·0	11·4	12·0	17·6	56·0	14·6
(N = 5)	2	7·6	7·2	7·6	7·6	32·0	6·6
	3	8·0	7·0	6·8	8·6	30·4	4·0

Table 22

Average satisfaction scores of Notre Dame of Jolo (Filipino) groups in communication-network experiment, classified by network, crossclassified by group member.

Network	Group member			
	Blue	*Red*	*Black*	*Green*
Wheel (N = 5)	90·0	89·0	84·0	86·0
Circle (N = 5)	91·0	90·4	86·0	96·0

Table 23

Student samples classified by number of groups tested, average number of messages sent, and average length of time spent on experiment, crossclassified by network employed (wheel or circle).

Student sample	Number of groups		Number of messages		Time (minutes)	
	Wheel	*Circle*	*Wheel*	*Circle*	*Wheel*	*Circle*
Haverford*	9	15	36·7	56·4	8·5	7·3
Cape Town						
Male	5	5	45·4	69·8	10·2	10·1
Female	6	7	45·5	72·3	12·4	8·8
Ateneo de Manila	12	12	69·0	96·0	15·6	12·2
Zamboanga	5	5	81·2	110·8	20·0	17·6
Jolo	5	5	66·0	118·4	30·6	25·2
Yoruba*	10	10	108·5	83·4	29·6	15·5
Ibo*	10	10	78·0	85·3	22·2	19·6

* For the United States and Nigerian samples the data are given for the wheel or circle networks when they were encountered on the first round.

There are, however, marked differences between the Filipino groups and those from other cultures with regard to the total number of messages sent in both the wheel and the circle.[9] These differences are apparent in Table 23, which gives summary data for the three trials in the wheel and the circle.

[9] To achieve a comparison between cultures, the data for all three Philippine colleges were combined, as were the data for males and females in South Africa. The Filipino subjects send significantly more messages (·05 level or better) than the students at Haverford and Cape Town. They also send significantly more messages in the circle than the Nigerians (·05 level). In the wheel, they send significantly less messages than the Yoruba (·01 level, t test); they also send less than the Ibo, though the difference is not significant.

In the wheel, the average Philippine group sends more messages than the American or South African groups but less than the Nigerian groups. In the circle, the Filipino groups send more messages than any other cultural group. These differences seem to be related to a high value placed by Filipinos on "smooth interpersonal relations" (Lynch 1965), which leads them to send more messages to "check up" and see if they are being understood. This observation will be further explained below, after we first consider the cultural differences in background and task interpretation between students from Nigeria and those from the United States.

Discussion

Background characteristics of students from Nigeria and the United States

All of the students in the Nigerian and American experiments were male. Both the modal Ibo and the modal Yoruba were 22 years old, Protestant, and the first male child. Neither the subject's father, who was a farmer, nor his mother had a formal education. The modal father had only one wife. Ten students in the sample were 28 years old or older, bringing the mean, or average, age to 24 years.[10] The means for the number of father's wives and education of parents were also higher than the modes. Ibo fathers had an average of two wives and Yoruba, three. For both groups, the mean for father's education was three years and for mother's education, one and one-half years. There were, among the Ibo, more Catholic students and no Muslims or members of other religions. The modal number of siblings for the Ibo was five or eight; for the Yoruba, it was fifteen. In sum, compared to the Yoruba, the Ibo was more likely to be a Catholic and the child of a man with fewer wives and fewer children.

The modal Haverford student, on the other hand, was 18·5 years old, Protestant, and the first male child. His father was a professional with one wife and a college education, and his mother had also been to college.

Cultural differences in task interpretation

Since the Haverford students were younger and from more educated families than the Ibadan students, we might expect them to be quicker in solving problems and to be more familiar with the type of puzzle used in the Leavitt experiment. However, the most important factor in explaining the differences in performance between the American and Nigerian students would seem to be their interpretation of the instructions given by the experimenter. Whereas

[10] In statistics, the mode is the most frequently occurring number or value in a distribution, whereas the mean is the arithmetic average of all numbers. Thus, most subjects in a sample may have only one wife, but if the others have two or more wives, the mean for the whole sample will be more than one.

the American student seemed to understand the task as a cooperative effort and was willing to accept the answer from other group members, the Nigerian student appeared to see the task in more competitive terms and often insisted on solving the problem for himself. This difference in approach would produce the greatest behavioral differences when the wheel network was encountered first and the task was relatively unfamiliar.

My instructions to each set of groups were substantially the same and were read from two typed cards. I first explained that the experiment had not been done before in Africa (or in the Philippines). The members of each group were to communicate in writing, using colored pens, and the messages were to be in English. The instructions continued as follows:

> You will have six problems to solve. They are quite similar. In each case there are five symbols: ○△◇□+ [the symbols were drawn on the blackboard]. We will call the first problem Trial 1. For Trial 1 each of you has a slip of paper with four of the five symbols. One of the symbols is missing from each of your slips of paper. This means that the four members in your groups have only one of the five symbols in common. Your task is to discover what the common symbol is. You may communicate with each other only by passing written notes. The trial is over when each of you thinks he has the answer. When you think you have the answer, write the word "answer" on a note together with the symbol which you believe all members of your group have in common. Then raise your hand. When all four of you have raised your hands, the trial is over and the notes will be collected.

I then went on to explain the slots in the partitions through which messages could be passed and began the first trial. As each person found the answer, he was recognized and told that he could put his hand down and continue to pass notes until all members of the group had the answer.

These instructions appear to be similar to the ones Leavitt (1951) used with his subjects in five-man groups. Leavitt (1951:41) says that "when *all five* men indicated that they knew the common symbol, a trial was ended." In Leavitt's experiment, the partitioned work space for each subject was provided with a board with a switch for each symbol. When a subject found an answer to the problem, he was to throw the proper switch, which would turn on a light on a master board in the observer's room. When a light was on for each member of the group, the observer called a halt to the t

After the first few sessions in the Nigerian experiment, it was apparent that some subjects would insist on collecting all the information and solving the problem for themselves, even though some other member might pass them the correct answer. For this reason I decided to give them an extra hint by

stressing the group nature of the task and adding the following statement to the instructions: "If one member of the group thinks he has the answer he may pass it on to the others."

This statement was read to all subsequent groups, including those at Haverford, Cape Town, and the Philippines. Even with this additional instruction, however, there is evidence from direct observation and from the content of the messages that in all but four of the forty Nigerian groups, the non-central members solved the problem for themselves, using the central member as a message center. This increased the number of messages sent and the time per trial in the wheel. Of the four groups in which the central person clearly made the decision, two were Yoruba and two were Ibo. For each tribe, the fastest group was one of the two groups in which the central member solved the problem.

As in the United States, the use of the central member to solve the problem in the wheel can result in greater speed if the central member is effective. However, it can also lead to a greater number of errors if the central member makes a mistake. In the Yoruba sample, the second group which used the central member to make the decision was one in which the central member made a mistake in trial two. He sent a total of 39 messages in the process of correcting the mistake. This resulted in the greatest number of messages sent for any of the ten Yoruba groups in the wheel-first version of the experiment.

As a sample of the content of the communication in the Nigerian groups, I have selected the messages sent by one member, Green, of an Ibo group in the first trial using the wheel network. This was the slowest of all the Ibo groups, and in fact was stopped at the end of 16 minutes because the members did not seem to be getting the answer.[11] The messages were, unfortunately, not collected in the order in which they were sent, but they still give some idea of the interaction. All of these messages were directed to Red, who was in the center of the network:

Green: Can you communicate with any other members of the group?

What are their signs?

Can you communicate with any other member or members of the group? If yes, what other symbols have they got?

(Picture of four symbols.)

How about Black? Find out Black's symbols from Blue and give me please!

(Picture of symbols for Green, Blue, and Red.) Find out Black's symbols from Blue and find the answer.

[11] One Yoruba group was also stopped on the first trial in the wheel after 21 minutes

You gave me the wrong symbols. Black's symbols again!

I am waiting for you! Hurry up! Black's or Blue's symbols please!

Apart from the plus sign what other symbols have you got?

I want the signs of the people you communicate with. Not your own.

Have you found Black's symbols? Give them to me please.

Have you got a plus sign on your card?

If a cultural tendency to be more competitive or cooperative explains a major part of the difference in performance between the United States and Nigerian groups, then how shall we explain the differences between Ibo and Yoruba in the wheel network? Or the differences between fast and slow Ibo groups, or between fast and slow Yoruba groups? Within each tribe there was considerable variation. The range of the total number of messages sent during the first three trials for the Ibo was 54 to 123 and for the Yoruba, 53 to 142.

For help in understanding these differences as well as to explain the relatively high level of satisfaction of those in the non-central positions in the Nigerian groups, I sought out some Nigerian students at Lincoln University after my return from Africa the first time. A dozen students, all Ibo, volunteered to take part in the communication-network experiment. In three groups of four persons each, they solved three problems in the wheel network. In the total number of messages and length of time spent on the problem, they behaved very much like their countrymen in Africa, although most of them had been in college in the United States for at least a year. As before, the messages poured in to the central member as each person tried to solve the problem for himself.

When the experiment was over, I tabulated the results on a blackboard and asked the students to explain what had been going on. Why, for example, were the non-central members so satisfied when it had taken so long to solve the problem? "Why not?", they answered, had not each of them been able to solve the problem in spite of the difficulties I had placed in their way by forcing them to communicate through only one person? Perhaps I should have known that a society which values the "palaver," or long discussion, as a method of solving problems, would place little value on sending the least number of messages in the shortest possible time.

But what about the differences between Ibo and Yoruba? Why do the Yoruba take so much longer in the wheel network? "Ah," said the Ibo, "the Yoruba do not trust each other." Presumably, if they had more trust they would be more willing to accept the answer from the man in the middle of the network. The following summer, when I was again at the University of Ibadan, I

talked to a Yoruba sociologist about the results of the experiment. Did trust make a difference? He replied in the negative, and proceeded to explain that the Ibo are strangers in Ibadan; they are from the Eastern region and Ibadan is in the Western region, where the Yoruba are predominant. As strangers they were more likely to work together than the Yoruba, who were in their home region. Although I tried to develop a "trust" scale from attitude questions which had been asked as part of the Autonomy Scale, and tried to devise a measure of the extent to which members of each group were strangers to each other by noting the distance between their home towns, I have so far been unable to demonstrate that any of the variance within or between groups results from the variable of "trust" or "strangeness." The testing of these hypotheses is the task of future research.

Message content in the Philippines

The content of the messages in the Philippines is quite similar to that of messages in the United States. On first reading it is not easy to see where the differences lie. As a sample, the following messages were sent by Green on the first trial in the circle in one of the Ateneo de Manila groups:

Green: Yes, I do.
Yes he has a square.
Does Red have a square too?
I have a square and a plus.
Do you have a plus?
Do you have a triangle?
Do you have a square?
I have a triangle and a plus. What are yours?
Please tell me if Red has a triangle.
I think it is a square too.

Compared with American and Nigerian subjects, the Philippine subjects are more polite in their message content. They also send more messages which "check up" on the correct answer or make sure that they are being understood. While such messages are found in other cultures, the increased frequency in the Philippines results in a significant increase in messages in the circle network, where each subject is communicating with the two persons on either side of him. Also following the Eastern tradition of politeness, the Philippine students give much higher ratings on satisfaction with the experiment: It would not be good form for one to say that he was not satisfied with his position. Although the relative differences in satisfaction between the central and non-central positions in the wheel are still apparent, more subjects in the circle checked 100 per cent satisfaction in the Philippine sample than in any other nationality group.

Summary

Communication problems in large bureaucracies have led to experimental research with different types of communication network. Noteworthy in the history of this research is the Leavitt experiment with the circle, chain, Y, and wheel communication networks.

In a variation of the Leavitt communication-network experiment, Yoruba and Ibo students from the University of Ibadan in Nigeria were tested in two conditions in four-man groups: wheel network followed by circle network, and circle followed by wheel. The results of the Nigerian experiment were then compared to those for students in the United States, South Africa, and the Philippines in terms of average number of messages sent, length of time to solve a problem, and level of satisfaction with one's position in the experiment.

The largest differences appear between the American groups and Nigerian groups in the wheel, and the American groups and Filipino groups in the circle. The American students send fewer messages, take less time to solve the problems in both types of network, and tend to give lower ratings on satisfaction when they are not in the center of the wheel. With the exception of the Yoruba in Nigeria, all groups send fewer messages in the wheel than in the circle, but take more time to solve the problems. In all nationality groups, the average member is more satisfied in the circle than he is in the non-central positions in the wheel.

Nigerian groups apparently take longer to solve the problems, especially in the wheel, because they are more likely to interpret the task as one in which each individual should solve the problem for himself, rather than cooperate and accept the answer from another group member. Since this is not true at the University of Cape Town in South Africa, it is evident that the difference lies in a "non-Western" approach to problem-solving, rather than in simply living on the continent of Africa.

In the Philippines, both the great number of messages in the circle and the high level of satisfaction with the task seem to reflect a concern for "smooth interpersonal relations," which leads group members to continually check the extent of their agreement and understanding and to inhibit the overt expression of negative comment.

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Autonomy, Dependency, and Problem Solving in Filipino Children*

Rachel T. Hare

Review of Past Research

Authoritarianism and autonomy. Adorno and his associates (1950) have noted that in addition to the low authoritarianism[1] which represents genuine autonomy, there are other syndromes among low scorers on the Authoritarian, ("F") Scale, such as the "rigid" low-scorer and the "protesting" low-scorer syndromes. The first is the low-authoritarian syndrome that Adorno describes as having the most in common with the overall pattern of high F-scale scorers due to its markedly stereotypical features and its disposal toward totalitarianism.

> Representatives of this syndrome can often be found, for example, among young, "progressive" people, particularly students, whose personal development has failed to keep pace with their ideological indoctrination (Adorno et al. 1950: 772).

Thinly veiled destructive fantasies and a rationalization of punitiveness, or the giving of punishment, are characteristic of this type of low authoritarian. The "protesting" low scorers, while set against parental authority, have at the same time internalized parental standards in the development of a strict conscience.

> While being non-authoritarian in their way of thinking, they are often psychologically constricted and thus not able to act as energetically as their conscience demands (Adorno et al. 1950: 774).

Weitman (1962) has further systematized this distinction among authoritarians by contrasting their approaches to authority. His classification scheme includes the *non-authoritarian*, a type who has no problems with authority; the *pro-authoritarian*, who is overly concerned with and obedient to authority (Adorno's "high F," or high scorer on the F Scale); and the *anti-authoritarian*, who is overly concerned with and resistant to authority. It is the anti-authoritarian who manifests the behavior described as pseudo-autonomy. Non-

* The research on which this paper is based was part of the Ateneo-Penn State Basic Research Program, sponsored by the United States Office of Naval Research, with The Pennsylvania State University as prime contractor (Nonr-656 [37]).

[1] *Authoritarianism* is a personality trait characterized by repression of unacceptable motives, projection of blame on others, conventionalism, conformity, and power orientation toward others. Its opposite is *autonomy*, which will be defined below.

authoritarianism, in turn, is operationally defined in the Autonomy Subscale of the Omnibus Personality Inventory (1963), a measure which embodies the qualities enumerated in the definition of autonomy used in the research reported below. That is, by autonomy is meant independence from authority as traditionally imposed by social institutions and the capacity to initiate and carry out activities, as well as the ability to be flexible and to deal with others in an equalitarian manner. Pseudo-autonomy may appear to be like autonomy in certain respects, particularly in terms of independence in dealing with the environment, but it is characterized by counter-conformity and rigidity-qualities which suggest that the underlying dynamics are very different.

The negativism associated with resistance, which is seen developing in the child beginning in his second year, has been characterized by Levy (1955) as the oppositional syndrome. Levy defines the oppositional syndrome in terms of the refusal to conform to the ordinary requirements of authority and conventional behavior.

> The "clash of wills" situation develops where the adult gets himself trapped in an untenable position in which he feels compelled to break the child's spirit. This illustrates the peculiar automaticity of oppositional mechanisms which under certain conditions are beyond control (Levy 1955: 210).

In effect, negativism in the child operates as a more primitive and safer form of aggression.

Erikson (1959) has also identified the problem of balancing autonomy and conformity in adult life as stemming from events in this early period of childhood. He observes that a possible outcome of too strict control on the child is that the child will rebel, becoming hostile and willful or pretending an ability to get along without anyone to lean on. A concomitant of such deviant autonomy is the individual's overmanipulation of himself as a consequence of a precocious conscience, a phenomenon which is seen in the "protesting" low scorer described by Adorno.

Autonomy and dependency. It has been shown that autonomy and dependency are not opposite ends of a bipolar continuum, but are independent factors which are, at the most, only moderately negatively correlated (Beller 1955, 1957; Beller and Turner 1964). Pseudo-autonomy, moreover, is one manifestation of dependency conflict; that is, the individual who has a conflict between the motivation to behave dependently and the desire to act autonomously may try to present himself as independent by inhibiting his unresolved dependency needs. In order to do this, he is considerably more rigid than the individual who is genuinely autonomous and who can express dependency needs when appropriate without feeling threatened. Beller and Haeberle (1959, Beller 1961) have observed that children with dependency conflict are less able to function autonomously, show more aggressive themes to dependency cards on the Children's Apperception Test, and are less adequate in cognitive functioning.

Signs of such dependency conflict are evident in the inhibition of dependency requests under conditions of stress, in the indirect expression or displacement of dependency requests, and in inconsistency in seeking help. The latter can be observed in a child's vacillation within a single act, for example:

> . . . requesting help and not accepting it when it was offered, or rarely requesting help but being overly excited when unsolicited offers of help or affection are received . . . vacillating between few and many or between low and high intensity of dependency behavior from day to day or from week to week . . . (Beller 1961: 17).

Beller (1961) points out further that the child's willingness to be assertive in a dependency conflict situation indicates a lack of conflict.

In studying dependency inhibition in adolescent boys, Cairns (1961) also views the absence of a direct request for help in a behavioral dependency test as being indicative of dependency inhibition. The test, a practically unsolvable puzzle, is introduced in such a way as to bring out most clearly a subject's resistance to and avoidance of help-seeking behavior. Beller (1961) has shown that the latency and directness of requests for help in such a situation are to be considered more as measures of dependency inhibition than of dependency motivation. He has found that when dependency stress is heightened in a conflict situation, there is an increase in disorganized and rigid behavior, especially among highly dependent children.

In comparing children, more autonomous behavior is expected from boys in American society than from girls. It has been found that not only do dependent children come from authoritarian family regimens, but also that dependent boys are more anxious, more sexually confused, and more likely to become psychotic as adults (McCord, McCord, and Verden 1962). Kagan and Moss (1960) note in their longitudinal study[3] that punishment of dependent behavior in boys leads to their inhibition of such behavior and to conflict over dependency. While passive and dependent behaviors are found to be quite stable for girls from birth to late adolescence, they are minimally stable for boys.

In considering other work on autonomy, it is important to point out that autonomy as defined in the study reported below is in line with the research cited above, but is not the same as it is defined by Edwards (1959). Murray's list of manifest needs which Edwards follows in the development of the Edwards Personal Preference Schedule fails to distinguish between genuine autonomy and pseudo-autonomy, considering both as autonomy. Thus, this definition, which incorporates aspects of counter-conformity, has a more negative connotation than the concept of autonomy used here. The following statements about autonomy are illustrative:

> . . . to avoid situations where one is expected to conform . . . to criticize those in positions of authority . . . [and] to avoid responsibilities and obligations (Edwards 1961: 11).

[3] A longitudinal study is one which is conducted on the same subjects over a long period of time to find out how their characteristics vary at different points in time.

Because of the differences in the behavior and orientation of individuals with genuine autonomy and pseudo-autonomy, as suggested in the literature, one would expect different experience correlates and different approaches to problem solving in these individuals.

Child rearing and autonomy in the Philippines. The importance of having, in the study of autonomy and dependency in the Philippines, an orientation different from that one would have in the United States is evident from research on Filipino maternal attitudes as well as research on student needs. In a factor-analytic study using the Parental Attitude Research Inventory, Guthrie (1966) found that irritability on the part of the mother is associated with assertiveness in the Filipino child, but with dependency in the American child. There were also differences in the number of factors related to parental authority and control. While in the United States sample, there were three such factors, in the Philippine sample there were seven. In contrast, five factors in the United States sample and two in the Philippine sample were related to the child's being on his own and responsible for his own behavior. Similar differences were found by Bulatao (1965), whose results showed that Philippine college students were lower than Americans on autonomy and exhibition, but higher on abasement, deference, dominance, and aggression.

Hiyâ. In considering the development of dependency and autonomy in Philippine children, one should also examine the concept of *hiyâ*, which is, above everything else, the behavior expected of the well-reared Filipino child.

Guthrie (1964) defines hiyâ as a "learned pattern of essentially anxiety reactions which may arise in certain interpersonal situations. In the presence of older, stronger, or more important people, children are expected to show and feel humility. Children are trained and expected to have a capacity for painful self-conscious, inferiority feelings." Guthrie (1964: 8) goes on to say:

> . . . they [children] are expected to be embarrassed when they make mistakes. Criticism by others is misery. To lose a game or fail in school is acutely distressing. If slighted, these feelings may cause the child to withdraw from school, from social contacts, or to take other extreme measures. Avoidance of this feeling would appear to be the motivation behind a number of patterns in later childhood and adulthood. On the other hand, to be solicitous for others' feelings, to be polite and hospitable, to make the other person feel good, are all approved. The child who does not show appropriate respect is called 'without hiyâ' which is just about the worst thing someone can say about a child. In a very real sense it is a pattern of feelings of personal insecurity which is expected and approved.

Hiyâ is customarily referred to as shame, although Guthrie feels this term is inappropriate, perhaps because hiyâ encompasses more than shame. Ausubel (1955) defines shame as "unpleasant emotional reactions by the individual to actual or presumed negative judgment by others resulting in self-depreciation. The individual may not internalize, in the sense of not accept, the moral value on the basis of which others condemn him." Levin and Baldwin (1959), in their paradigm for the conditions which instigate guilt and shame, say that

shame results when a defect or lack of ability or a transgression is displayed to other people. These definitions suggest several questions that are applicable to the problem of understanding hiyâ and the dependent and autonomous behaviors of the Filipino child.

Is hiyâ a basic personality characteristic which covers the range of social situations? Or is it an adaptive interactional behavior which is elicited only in certain public situations for the purpose of avoiding anxiety which has arisen in the past in such critical situations? In terms of autonomy and dependency, can the child who manifests hiyâ in public also display autonomous behavior in non-public situations?

Privacy is rare in the Philippines. Dependency, first on family, then on peers, is consistently and positively reinforced, while independence is negatively reinforced to the point where the individual is anxious when alone. Since dependency is accepted and fostered, in contrast to the situation in American society, there would be little conflict about expressing it. On the other hand, because of socialization in the direction of hiyâ there may be serious conflict in the child and the adult when it comes to the expression of autonomy. That autonomy is present to the extent of acquiring skills and mastering tasks as the child grows, in the sense of White's (1960) competency, is accepted as a concomitant of normal development. However, achievement anxiety may be low in the Philippines due to the lack of emphasis on excellence--with poor work rewarded the same as good work—and to the unlimited emotional support of the family (Bulatao 1965).

Although it is not clear how hiyâ develops, it is undoubtedly related to the widespread teasing behavior of older toward younger persons. The Nydeggers in Whiting's *Six Cultures* (1963) write that it is not unusual for a group of women to tease an infant. Such teasing probably results in confusion for the infant, for while the group atmosphere is one of fun, he feels uncomfortable and insecure at not enjoying what is going on. Since the expression of anger at what is basically a hostile situation is not permitted, he is not only frustrated but confused as well. Aggression can only be expressed through teasing others younger than oneself or peers who do not conform to group norms (Hollnsteiner 1965).

The Present Study

Hypotheses

The first hypothesis in this study of autonomy and dependency among Filipino children is that those children with genuine autonomy will do better on a cognitive task than those with pseudo-autonomy. This reflects their greater flexibility in dealing with their environment without being confused by irrelevant surroundings. As Adorno and his associates (1950) note, too much concern with authority—which is characteristic of pseudo-autonomy—

is a defensive attempt to maintain structure in the environment. Weitman (1962) finds that, when compared with the non-authoritarian, both the pro-authoritarian and the anti-authoritarian do poorly on cognitive tasks such as an information test and an embedded-figures test. The hypothesized results are shown in Figure 1. Genuine autonomy is represented by high autonomy-low dependency conflict and pseudo-autonomy by high autonomy-high dependency conflict.

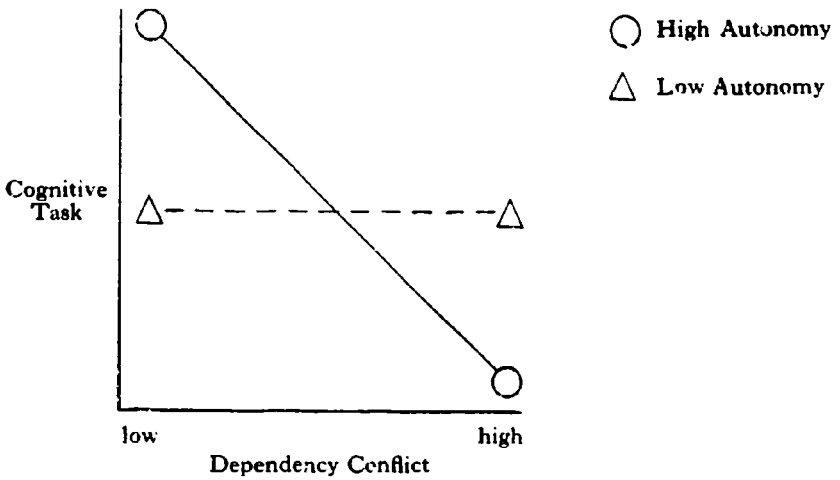

FIG. 1. *Expected results on a cognitive task for subjects with genuine and pseudo-autonomy.*

A number of recent studies on American children have shown that success and failure in problem-solving behavior depend a good deal upon the locus of reinforcement—that is, upon whether the reinforcement is inherent in the task (intrinsic) or whether it is extraneous to it (extrinsic) as well as on motivational and environmental variables (Davis 1967). The second hypothesis is that Filipino children from a developing traditional society where dependency on family and peers is encouraged, would do better in problem solving under extrinsic reinforcement rather than intrinsic reinforcement.

A third hypothesis is that children with genuine autonomy will show less hostility toward authority figures on a fantasy measure than those with pseudo-autonomy. This follows from the fact that the pseudo-autonomous are more resistant to authority in maintaining their apparent autonomous behavior.

With increasing age, there are greater pressures on boys to inhibit dependency behavior and appear independent. This has been demonstrated in American society (Kagan and Moss 1960) and is expected, but to a lesser extent, in Filipino society. The fourth hypothesis is that pseudo-autonomy

will increase as boys grow older due to the increasing conflict between dependency and autonomy.

A fifth hypothesis is that dependency conflict will be rare among Filipino children. As suggested above, the child is not expected to be self-reliant but is expected to ask for help when he needs it, and help is freely given. Although this behavior changes somewhat with age, since the Filipino child is not punished for dependency, he has less need to inhibit it. Thus, conflict about expressing dependency needs is not the predominant pattern in the development of the Filipino child.

Under stress, the Filipino, according to Sechrest (1966), tends to act out in an impulsive, voluble manner rather than withdraw. Thus the sixth hypothesis is that dependency conflict, where it manifests itself, will be expressed in impulsive, irrelevant behavior rather than as pseudo-autonomy. Since there is a lack of emphasis on excellence, and poor work is frequently rewarded to the same degree as good work, there is little anxiety about independent achievement or desire for it in children.

A further hypothesis is that hiyâ and autonomy will be negatively related. The independent action associated with autonomy is in marked contrast to the behaviors surrounding hiyâ.

The above hypotheses are formulated with respect to a *provincial*, rural, sample. Within this sample it is expected that rural lower-class subjects will show greater dependency than urban subjects, thus reflecting the conservative adherence to traditional norms in the provinces. The influence of the traditional culture would be less clear and consistent among Filipinos with Western values in Manila, the urban center, although even there, the influence of modernization and the conflict in values are not apparent in young children.

Method

Subjects. The subjects were 88 boys, five to 10 years old (mean 7·2), attending kindergarten and first grade in the Bicol region, the southernmost part of Luzon, the principal island. Sixty of them were from a private school in a provincial town, and 28 were from a nearby rural barrio public school.

Instruments. Two intelligence tests were used. One was the Raven Colored Progressive Matrices, and the other was the Intelligence Test for the Tropics (ITT) developed by Guthrie, Tayag, and Jimenez.[3] These tests are both nonverbal; that is, they do not involve reading or writing.

Also used were eighteen pictures of the Children's Form of the Rosenzweig Picture Frustration Study which seemed appropriate to the Philippines. In administering this test, the examiner pointed to each picture, described the picture in a standard way in Bikol, and recorded the child's answer.

[3] The Raven Colored Progressive Matrices is also customarily used by the Guidance Center of the Ateneo de Manila University.

Two experiments were conducted with each child. In the first, the child was presented with a colorful but very difficult puzzle (Kwazy Quilt) and told that he might ask for help if he needed it. The frequency and latency of his requests for help in a ten-minute period were recorded. This kind of situation has been used in research by other investigators as a measure of dependency-autonomy conflict. The second experiment measured the child's performance on a simple problem-solving task under conditions of either intrinsic or extrinsic reinforcement. The task consisted of the child's learning to find under which of three different-sized boxes an object was hidden. The boxes were presented in a standard random order for 30 trials, the criterion being ten successive correct trials. A child was given either intrinsic or extrinsic reinforcement; children were assigned randomly within their classes to one of the two reinforcement conditions.[4]

Scores on autonomy, dependency toward children, dependency toward adults, and hiyâ were obtained for each subject from behavior-rating scales. The first three scales were developed by Beller (1955), the hiyâ scale by the experimenter. Ten different kinds of behaviors (seeks help, derives satisfaction from tasks, etc.) that operationally define autonomy or dependency, as well as three dealing with hiyâ were used. Each subject was rated with respect to the other boys in his classroom. Ratings were made by the classroom teacher and a research assistant; the latter observed subjects during the same week the teacher was observing them and making ratings. In this way, two independent ratings were obtained; the reliabilities ranged from ·50 to ·73. The ratings were combined for each subject's score.

Procedure. All materials were translated into Bikol and administered to the subjects in Bikol by three Filipinas who served as research assistants. The testing was done in two sessions for each child since a different assistant carried out each experiment. The experimental situation was given first in any session, then the remaining tests were administered.

Results

The first hypothesis was not confirmed, in that children with genuine autonomy did not make fewer errors on the problem-solving task than those with pseudo-autonomy. In fact, the trend was in the opposite direction; that is, those with pseudo-autonomy did better than those with genuine autonomy.

Generally it was found that Filipino children performed better under conditions of extrinsic reinforcement than under conditions of intrinsic

[4] In the intrinsic reinforcement condition, the child is instructed to pick up one box at a time until he finds the hidden object. His reward comes from seeing that he has chosen correctly since the examiner makes no comment. In the extrinsic reinforcement condition the child is instructed to point to the box he thinks is the right one but not to pick it up. Praise from the examiner constitutes his reward rather than his own perception of success.

reinforcement. The difference was in the predicted direction, although it only approached significance. However, it was found that highly dependent children made significantly more errors under intrinsic reinforcement while highly autonomous children made less errors under the same conditions.[5] In addition, children with previous schooling made significantly fewer errors under conditions of intrinsic reinforcement, as has been found for American children.[6] Under conditions of extrinsic reinforcement no statistically significant difference was found.

Success and failure of problem solving under either condition were unrelated to age and intelligence. It might be noted that while the Raven test and the ITT "loaded" on the same factor in the factor analysis,[7] they seemed to be measuring different aspects of intelligence, the correlation being only ·21.[8]

The score on extrapunitiveness in the Rosenzweig Picture Frustration Study was used as a measure of hostility and aggression toward authority figures. No significant differences were found between children with genuine autonomy and children with pseudo-autonomy with respect to extrapunitiveness.

The fourth hypothesis, that pseudo-autonomy in boys will increase as they grow older, was confirmed. In general, it was found that older subjects showed more conflict between dependency and autonomy on the experimental conflict task of solving the puzzle. The correlation for age and conflict was −·37.[9] Age and problem solving were not correlated significantly.

Dependency conflict did not prove to be rare among the subjects studied. Fifty-three of the 88 subjects, or 60 per cent, were so inhibited that they made no requests for help during the ten-minute experimental conflict situation. However, when the sample was separated into rural and town subjects, it was found that the rural lower-class subjects showed more conflict.[10] Thus it was not found that Filipino children when faced with a task which was difficult act in an impulsive, voluble manner rather than withdraw. As seen above, the majority of subjects were neither impulsive nor voluble. The three scores which made up the conflict score were highly correlated, and had loadings on the conflict factor of −·9051, −·8885, and ·6526, for directness of requests for help, number of words used, and latency, respectively.

A significant negative relation was found between hiyâ and autonomy, as predicted. The correlation was −·53.[11] In addition, hiyâ was negatively correlated with dependency among children (correlation = −·44) and with

[5] t test, probability less than 0·05.

[6] t test, probability less than 0·05.

[7] To the extent that a test measures a factor, it is said to *load* on the factor.

[8] Correlation is a statistical procedure aimed at determining to what degree two things, or variables, are related, to what extent variations in one go with variations in the other.

[9] Two-tailed test, probability less than 0·01.

[10] Chi-square test, probability less than 0·01.

[11] Two-tailed test, probability less than 0·01.

dependency among adults (correlation = −·33).[12] One might posit that hiyâ was measuring the inhibition of dependency needs as seen in the conflict situation were it not for the fact that no significant correlations were found between hiyâ and any of the conflict scores. Ratings of dependency on adults and dependency on children were negatively correlated with number of siblings,[13] a finding which suggests that children in larger families are less dependent than those in smaller ones.

Discussion

Of major interest is the finding that in the Philippines, as in the United States, problem-solving behavior varies with the locus of reinforcement. As expected, the greater dependency encouraged in Filipino children leads them to do better under conditions of extrinsic rather than intrinsic reward. However, with school experience and its emphasis on independent task completion, intrinsic reinforcement in turn increases in effectiveness. The fact that pseudo-autonomy increases with age in Filipino boys likewise indicates that pressures for independent achievement in school are coming into conflict with the dependency encouraged by the family, and that such dependency is being inhibited in school-like situations. This conflict appears to be greater for children from the more rural traditional homes than those from towns.

That differences were not found between genuine and pseudo-autonomous subjects in the problem-solving task may reflect in part the nature of the task. Actually, this cognitive task did not involve restructuring the environment, although it did involve the formulation and testing of successive hypotheses. Perhaps the task was not an adequate test of different styles of cognitive functioning between genuine and pseudo-autonomous subjects. Also, the question might have been raised as to whether pseudo-autonomy applies to the Philippines in the way it does to the United States, since less dependency conflict was anticipated. This was answered by the finding that dependency conflict was not uncommon among the Filipino subjects, although a direct comparison with an American sample using the same experimental procedures would still be desirable to affirm this finding.

Several hypotheses based on anthropological observations of Philippine society were not supported in the controlled experimental situations used in this study. In addition to showing considerable dependency conflict—a finding which was not in line with reports about the permissive attitude toward and encouragement of dependency in the Philippines—the subjects did not show impulsive, voluble behavior under the stress of an unsolvable task, as suggested by Sechrest. Thus they neither asked for help nor behaved in an irrelevant manner. Similarly, the nature of hiyâ remains unclear. Not only is it negatively

[12] Both significant at the 0·01 level, two-tailed test.
[13] Probability less than 0·05.

related to autonomy and dependency, but it is unrelated to those conflict behaviors that might be encompassed within the meaning of shyness, that is, inhibition of dependency requests, latency in asking for help, and the amount of verbalization by the subjects.

Thus, while there are some contrasts between Filipino and American children, there are also similarities. It seems that the contrasts have perhaps been overemphasized. What one is led to conclude is that the norm is not the simple one of dependency in the Philippines and autonomy in the United States; rather, one is confronted here with the more complex problem of how individuals in any society learn to deal with conflicting demands made upon them—in this case with demands to behave autonomously under some conditions and dependently under others, since both demands are in fact present in the Philippines.

Summary

Among 88 Filipino boys in kindergarten and the first grade, highly dependent subjects made more errors under intrinsic reinforcement in a problem-solving task while highly autonomous subjects made less errors under the same conditions. The 20 subjects who had had previous schooling made fewer errors under intrinsic reinforcement, but no differences were found under extrinsic reinforcement. Pseudo-autonomy—that is, high autonomy with high-dependency conflict—increased with age, but pseudo-autonomous subjects did not differ from genuinely autonomous subjects with respect to success in problem solving or in amount of hostility expressed. Dependency conflict was not as rare as reports of Filipino society might lead one to believe, with rural subjects showing more dependency conflict than town subjects. Hiyâ or shyness was negatively related to dependency as well as to autonomy.

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Infant and Maternal Nutrition in Four Tagalog Communities*

Helen A. Guthrie

Many aspects of a country undergo change as it develops. Some of the most obvious changes are improved roads, new industries, growing cities and a different style of life for the people. Although modifications in dietary patterns are not as apparent, they may be of extraordinary significance to the whole process of modernization. The role of adequate nutrition in promoting and maintaining a high level of productivity cannot be ignored. In developing countries, people in lower socio-economic groups spend from 80 to 90 per cent of their income on food and direct a correspondingly significant portion of their effort toward procuring food. Any change in the relative supplies or costs of food or in beliefs about the values of certain foods may assume considerable significance. This is particularly true with respect to the health of infants and preschool children. The nutritional status of this group is most precarious—not only because of the way they are fed, but also because of the dietary habits of the mother during pregnancy and lactation.

Both the World Health Organization (WHO) and the Food and Agricultural Organization (FAO) have observed that in developing countries where the food supply is inadequate, the distribution of food uneven, the per-capita income low, and where cultural factors intervene to restrict the food available, malnutrition is a major public-health problem. Under these conditions, it is the infant and the preschool child who are most neglected and adversely affected. Malnutrition in the young child may be manifested in many ways: through lethargy and apathy, retarded growth and increased susceptibility to infection, retarded mental and social development, and the protein-calorie deficiency diseases kwashiorkor and marasmus. Because of the widespread impact of malnutrition on the social development and health of children, major national and international programs are being directed toward the

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prevention of preschool malnutrition. Such efforts in a particular country must be based on a knowledge of prevailing practices and beliefs as they influence the diets of mothers and infants. In addition, it is necessary to identify the influences which result in modifications of long-standing practices.

There have been several reports on nutritional practices during pregnancy and on feeding infants in various areas of the Philippines (Bulatao-Jayme and Madlangsacay 1965, Peralta 1962, Guthrie 1963). With the rapid rate of development which is occurring in many areas and the resultant changes in many of the folkways, it seemed desirable to assess the extent to which infant-feeding practices are being modified as communities are exposed to the influences of modernization. Accordingly, this research was concerned with the nutritional practices of mothers during pregnancy and lactation; the ways in which they feed their infants and young children; their beliefs, both folk and scientific, concerning the relationship between food and health; and the social and cultural factors which determine and maintain nutritional practices. By focusing on four Tagalog-speaking communities at various distances from Manila, we assessed how nutritional beliefs and practices change under such influences of modernization as industrial growth, expanded educational opportunities, and increased exposure to mass media.

The Present Study

The present study was designed to identify the nature of nutritional practices of mothers during pregnancy and lactation, and in feeding their infants during the critical first few years of life. In addition, we wished to compare practices in four communities comparable in population, socio-economic variables, and language, but subjected in varying degrees to the influences of urbanization. This was done to elucidate the impact of modernization on dietary patterns.

The communities. The four communities in which data were collected were 45, 100, 190, and 400 kilometers, or roughly one, two, four, and eight hours' trip by public transportation, from Manila. Throughout the report they will be designated as communities A, B, C, and D, respectively. The economic, social, and geographic characteristics of the towns are outlined here and will be described in detail by G. M. Guthrie (1969) in another publication.

Community A was located on the shores of Laguna de Bay, an inland lake in Southern Luzon. Many residents commuted to Manila to work or to attend college. Traditionally, the community had relied on rice and ducks for a livelihood. Eggs from the ducks were incubated for twenty days, then hard-boiled and sold as a food delicacy in the city. Within the past decade, industrial development has brought a paper mill and a distillery warehouse to the community. Many other industries have developed in adjacent lakeshore areas.

B is a town on the slopes of Mount Banahaw of the Sierra Madre mountain range in Southern Luzon, and is located at an altitude of 1000 feet. Cottage industries such as slipper making have flourished, as well as the cultivation of coconuts and *lanzones*, a tropical fruit. With a good water supply from the mountain and a climate moderated by the elevation, the area is especially adapted to vegetable production.

Town C, located on the far side of Banahaw from Manila, is on the Pacific shore. The principal industries are coconut cultivation and seasonal fishing. It is reached by a poorly maintained road. The most remote town, community D, is on the Mindoro coast and is dependent on coconuts and rice. There is also a limited development of fishing and cattle raising.

Each town has approximately 5000 people, with Tagalog as the dialect of the vast majority of people. There are, of course, tremendous differences in the number of people who move from and through the towns en route to Manila. The extent to which mass media—television, radio, and newspapers—reach the population also varies, as does the reliability of telegraphic and mail communication.

The sample. Fifty mothers who were still nursing their three- to ten-month-old infants were interviewed in each community. Interviews were conducted only in the población. Mothers with formal training in the health-related fields such as medicine, pharmacy, nursing, and home economics were excluded. Assuming that 80 per cent of the mothers breast-fed their babies, our sample represented over 75 per cent of all mothers who met these criteria in each community. Interviewers reported virtually complete cooperation among those asked to participate.

The data on the education and occupation of the parents and on family size are shown in Table 1. From this table it is evident that the samples in the four communities were relatively comparable in terms of socio-economic background. A comparison with the 1960 census data shows that our samples—in which over three-fourths of the fathers were employed in farming, fishing or unskilled occupations, and over 50 per cent of both the fathers and mothers had had no education beyond sixth grade—were representative of the total population in these communities.

Examination of the birth and death rates for each municipality showed a birth rate ranging from 35 to 52 per 1000 population and a mortality rate in the first five years of 107 to 163 per 1000 live births. The death rate is sufficiently high to be considered by the World Health Organization (1963) as suggestive of malnutrition. Although most deaths were attributed to infectious conditions such as bronchitis, pneumonia, and measles, malnutrition and beri-beri were mentioned occasionally. Since there was often no medical doctor in attendance, the reliability of the data on cause of death was questioned even by those responsible for keeping the records.

Table 1

Family composition and background.

Family composition and background variables	*Community*				
	A	*B*	*C*	*D*	*Total*
	(N=50)	*(N=50)*	*(N=50)*	*(N=50)*	*(N=200)*
Age of mother					
Less than 20 years	6%	12%	14%	12%	(11%)
20–30 years	70	52	52	42	(54)
More than 30 years	24	36	26	44	(33)
Education of mother					
Up to 6th grade	62%	66%	42%	56%	(56%)
Some high school	14	8	30	20	(18)
High-school graduate	8	10	6	12	(9)
Professional or technical training beyond high school	12	16	22	6	(14)
Occupation of mother					
Housewife	90%	62%	76%	88%	(8%)
Professional or business	4	20	4	2	(8)
Unskilled	4	18	10	10	(12)
Husband's education					
Up to 6th grade	20%	66%	42%	64%	(47%)
Some high school	32	10	28	8	(20)
High-school graduate	16	8	10	8	(11)
Professonal or technical training beyond high school	28	16	18	8	(18)
Husband's occupation					
Laborer, fisherman, fanner	70%	54%	78%	78%	(70%)
Semi-skilled	14	6	8	10	(19)
Business	6	26	2	2	(9)
Professional	4	14	10	6	(9)
Number of children living					
1	24%	26%	16%	18%	(21%)
2–4	50	34	50	46	(45)
5–7	16	24	26	26	(23)
8 or more	6	2	8	12	(7)
Average number of children living	2·6(n)	2·8(n)	3·6(n)	4·0(n)	
Number of children not living	7(n)	17(n)	22(n)	15(n)	

Development of the interview schedule. A questionnaire was developed in English to be used in interviews with lactating mothers. It called for information on the mother's typical food intake, her beliefs about the role of specific foods in promoting or deterring successful lactation, and the extent to which she

modified her normal dietary pattern when nursing a child. The mother was asked to recall her dietary practices during pregnancy, her beliefs about the role of specific foods in promoting a successful period of gestation, the source, nature, and extent of her medical advice and help, and her use of dietary supplements. Further questions centered on the way in which she was feeding her present child and had fed previous children from birth through the preschool period, and her beliefs about the relationship between food and health in children. Information was also obtained on the economic and educational background of the family, and the extent to which they relied on home production of food.

After trial interviews with several mothers, the original questionnaire was modified to eliminate ambiguities and to clarify the questions. The schedule was translated into Tagalog and given to six lactating women comparable to those to be interviewed in the study. On the basis of their responses, the questionnaire was again refined. Before being reproduced in final form, the Tagalog version was translated into English by another bilingual assistant to insure that the original intent of the questions had not been distorted in translation.[1] The final form included 46 major categories of questions which yielded 140 pieces of information. These were coded and tabulated in the final analysis.

Interviewers. The interviewing was done by mature schoolteachers in each community. They were persons very familiar with their own community and sufficiently well-known to be readily accepted by the interviewees. All were fluent in both English and Tagalog. After receiving detailed instructions, each of them interviewed five persons to familiarize herself with the technique. The responses were checked carefully and any gaps in the information or misinterpretation of items were discussed. All interviewing was done at the end of the schoolyear, in April and May, when the women were able to work full-time. The time required for each interview ranged from 75 to 120 minutes. The decision to use different interviewers in each area was made after the advantage of having a person familiar with the area was weighed against the disadvantage that a certain bias between communities might be introduced by the interviewer herself. The latter factor had to be kept in mind in interpreting the results.

Tabulations. The responses were translated into English by the interviewer. Again it was felt that the possibility that her translation would bias the results was counterbalanced by the advantage of her being able to interpret the feelings of the respondent. The translated interviews were all coded by a Filipina who was a dietetics graduate. Coded responses were tabulated for each community and for the total group. Throughout the table the results are presented as the

[1] The interested reader may write the Institute of Philippine Culture for copies of the English and Tagalog versions of the questionnaires used in this study.

percentage of each group that gave a specific response. Since some women gave more than one response to a question and some had no answer to a specific question, the total responses for any one question do not always total 100 per cent of the sample.

Findings

The results of some of the more significant items in the interview schedule are presented in Tables 2, 4, 5, 6, and 7. These results, and other related findings not specifically tabulated in these summaries, will be discussed as they pertain to pregnancy, lactation, and the feeding of infants and young children.

Table 2

Dietary practices during pregnancy.

Dietary practice	*Community*				
	A (N=50)	*B* (N=50)	*C* (N=50)	*D* (N=50)	*Total* (N=200)
Differences in food practices during pregnancy					
None	70%	92%	76%	78%	(79%)
Added fruit	6	–	6	4	(4)
Added vegetables	8	–	12	8	(7)
Added sour foods	16	4	–	4	(6)
Food considered good					
None	60%	80%	80%	78%	(75%)
Vegetables	2	10	4	4	(5)
Fruit	–	2	4	2	(2)
Meat, fish, eggs	12	2	2	2	(5)
Foods avoided					
None	48%	26%	48%	69%	(45%)
Sweets	8	30	4	6	(12)
Salty foods and seasoning	16	20	12	30	(20)
Fish	4	14	16	10	(11)
Rice	6	4	2	6	(5)
Eggplant	6	12	2	2	(6)
Cravings					
None	34%	32%	32%	60%	(40%)
Fruit	32	66	48	16	(41)
Eggs, fish, chicken	16	10	10	8	(12)
Coconut	4	10	6	6	(7)
Sour foods	4	10	4	10	(7)
Food aversions					
Fish	10%	12%	16%	2%	(10%)
Sautéed foods	4	8	6	2	(5)
Rice	–	2	–	12	(3)

Table 2 (continued)

Dietary practice	Community				
	A (N=50)	B (N=50)	C (N=50)	D (N=50)	Total (N=200)
Medical advice on diet					
None	50%	34%	56%	20%	(40%)
Eat more vegetables	8	24	12	24	(17)
Take vitamin supplement	10	4	4	16	(17)
Avoid sweets	8	20	6	–	(8)
Eat less salt	2	14	4	12	(8)
Eat more fruit	–	12	2	14	(7)
Use of dietary supplements					
None	38%	16%	18%	40%	(28%)
Regularly from early pregnancy	4	14	6	8	(8)
Regularly first half of pregnancy	38	24	22	26	(27)
Irregularly because of cost	–	8	4	4	(5)
Irregularly until used up	16	32	40	14	(26)

Dietary practices and beliefs during pregnancy

Pregnancy is generally recognized by health personnel as a period of nutritional stress when the mother's needs for specific nutrients are increased from nine to 60 per cent over normal. While energy needs increase by only ten per cent, and then only during the second half of pregnancy, the needs for other nutrients increase to a greater degree shortly after conception. Thus, if there is to be normal fetal development without depletion of maternal reserves, the normal eating patterns of a pregnant woman must be modified in the early part of pregnancy The maintenance of a high level of nutrient intake was imperative for the health of the women represented in this study. Sixty-nine per cent had two or more children under five years of age and thus had been subjected over a long period of time to high nutritive demands.

To identify the nature and extent of modification in diets practiced by the women in our four communities during pregnancy, our subjects were asked what foods, if any, they added to their diets; which they avoided; and their reasons for any changes. In addition, the women were asked what foods they believed to be especially good or harmful for a pregnant woman and the basis for these beliefs, and what food they either craved or especially disliked. Other questions focused on the factors which might have influenced their eating habits. Their attitudes toward help from medical and non-medical practitioners and the use of nutritional supplements were also recorded. Data on dietary practices and beliefs during pregnancy are shown in Table 2.

Food intake. In spite of the fact that over three-fourths of the mothers had seen a doctor, their most likely source of reliable dietary advice during pregnancy, 79 per cent reported that they did not eat differently from the way they did normally. Moreover, 75 per cent felt that no foods were particularly good for a pregnant woman. This finding is in keeping with that of Peralta et al. (1962) who found that women in Manila did not modify their diets during pregnancy. Of those who did eat differently, four per cent added fruit; seven per cent, vegetables; and six per cent, sour foods. An additional four per cent supplemented their normal diet with a variety of foods ranging from rice gruel to bread, sweets, eggs, and meat. The most common reason for adding these foods was that the women like them, although six per cent indicated that their choice was influenced by nutritional or health factors. The 25 per cent of the mothers who believed that there were some foods especially good for pregnant women gave a wide range of answers, with no consensus at all for any food group, let alone a specific food. Only one mother mentioned milk; only eight listed other protein-rich foods; and only nine included vegetables. Of the mothers who recognized the value of certain foods, one-fifth did not eat them themselves because they became nauseated on eating them, and another fifth because they did not like them. Still others were concerned with the cost or with the size of the baby.

Foods to avoid. There were many more beliefs regarding foods that should be avoided than foods that should be used during pregnancy. Although only 38 per cent of the mothers felt that there were foods which should be avoided, 55 per cent actually did cut out one or more foods. Twenty per cent eliminated salty foods and seasonings; 12 per cent cut out sweets; 11 per cent were reluctant to eat fish; and six per cent did not eat eggplant. Other foods considered undesirable for a pregnant woman were sour foods, cold foods, corn, and rice. This list of foods which they did avoid corresponded closely to the list of foods that they felt should be avoided. In general, mothers were suggesting a restriction in foods high in calories and high in sodium, both of which have been associated with weight gain during pregnancy. Ten per cent reported that they did eat the foods they had listed as undesirable with no ill effects. Five women did, however, report symptoms such as edema, longer labor, and nausea as a result of their indiscretion. The basis for avoiding specific foods was primarily to prevent one from having a big baby, although there were many other reasons for avoiding eggplant. While the belief that certain foods are harmful is widespread and persistent, the majority of respondents could not cite any instances of women in their acquaintance who had difficult pregnancies as a result of eating the wrong food. However, nine women attributed edema, a longer pregnancy, or a more difficult labor to the eating of "wrong" foods. Although the frequency of confirmation of these belief systems is low, it is actually high enough to maintain them.

Food cravings and aversions. Pregnancy has long been recognized as a time when women experience intense desires or cravings for particular foods, often those that can be obtained only with great difficulty. Conversely, pregnant women report disliking foods which they have previously accepted. The women in our study conformed to this pattern. Sixty per cent reported some food cravings and 39 per cent, food aversions. Fruits such as prunes, guava, papaya, banana, pineapple, and mango were desired by 41 per cent of the women. Protein foods such as eggs, fish, snails, sea foods, and chicken were mentioned next often, followed by sour foods, coconut or coconut tree heart, and vegetables. Almost twice as many women in communities remote from Manila had cravings as did those in community A, but there was no difference in the frequency of food aversions. Fish, sautéed foods and rice, normally staple items in the diet, were the ones to which women most often developed a dislike. The use of garlic in cooking, a universal practice among Filipinos, made these foods even more objectionable. Other food items such as coffee, ginger, pineapple juice, meat, sour foods, fruit, chicken and fish paste were each named once or twice. It could be cause for concern if fish, the primary source of protein, were omitted, especially if the mother is unable to substitute other, more expensive sources of good quality protein. The elimination of rice and fried foods could result in a significant decrease in the caloric content of the diet. The omission of any one of the other foods mentioned is not critical in terms of the adequacy of the diet during pregnancy. None makes a unique nutritional contribution that cannot be met by other readily available foods.

Medical advice. Since it is generally believed that good medical advice early in pregnancy is desirable to help promote a normal course of gestation for both the mother and the fetus, we were interested in the extent to which women sought medical advice and the nature of the advice they received, especially as it concerned diet. Of 26 mothers who reported they had not seen a doctor during their most recent pregnancy, only four had gone to a doctor during previous pregnancies. Eighty-seven per cent of our subjects did consult a physician, either one in private practice or one at a puericulture, or mother-child health center. Of these, one third did so first by the third month; over a third saw a doctor by the sixth month; and less than a fourth did so by the eighth month or later. Seventeen per cent of all mothers reported that they went only once; 16 per cent went two or three times; and the others, four or more times. The majority saw the doctor first explicitly to confirm a pregnancy, but 20 per cent reported that their visit was occasioned by a wide variety of medical complaints ranging from general pains and weakness to dizziness, numbness, bleeding, nausea, edema, and varicose veins. Thirty per cent said they continued to go as often as the doctor wished. The others, who did not go as often as he wanted them to, generally gave no reason; however,

those that did said that the doctor was "too far," or that seeing him "cost too much," or was "too much bother." Often the mother was working, or felt she had no need to go since she was not sick.

Of those who consulted a doctor, 80 mothers said they were given no advice about what to eat. Others were advised to eat more vegetables (37), more fruit (14), more meat (3), a well-balanced diet (16), and to include vitamins (17). They were also told to eat less salt (16), fewer sweets (17), and no fatty foods (3). All but 15 of those who were advised on food practices by the doctor maintained that they followed his advice. This finding does not support their earlier assertion that they failed to modify their regular diets during pregnancy.

Use of non-medical practitioners. While the majority of the women sought recognized medical help at least once, 62 per cent of the mothers also consulted a *hilot* or *herbolario.* A hilot is an untrained midwife while an herbolario treats certain categories of illness with herbs, prayers, and magic rituals. Only one mother relied on an herbolario alone. The primary reason given for consulting a hilot was to have the position of the fetus checked. The only community in which few women consulted the folk practitioner was community A. The fact that many of the others relied on the service of a hilot in preference to that of a physician at the time of delivery is borne out by the statistics on the place and nature of delivery. Only 15 per cent of the deliveries were attended by a physician, while hilots officiated at 43 per cent. Trained midwives were present at an additional 37 per cent. Physicians in communities C and D reported that it was common practice for their patients to call a hilot or herbolario at the time of delivery, and to consult the physician only if labor became very prolonged and difficult or when there were other complications. Mothers did not indicate that they received any advice on diet from the herbolario or hilot.

Dietary supplements. The widespread use of supplements, primarily vitamins, reflects some recognition of higher nutritional needs during pregnancy and an effort on the part of physicians to encourage their use. While 28 per cent of the women, most of whom were from communities A and C, took no supplements, others took them with varying regularity. Eight per cent said they took them regularly from two months on; 12 per cent used them from five months on; and 15 per cent took them from seven months on. The rest reported they only used them for short intervals because they could not afford them; they felt they had had enough; they were too lazy to go back for more; they didn't like the taste; they were frightened of medicine; or they just forgot. From these reasons, it is obvious that, while there was some awareness of the merits of supplementing the diet, the appreciation of the importance of supplements was often not great enough to prompt regular use throughout pregnancy. Personnel at rural health centers reported that they distributed the

supplements free when they were available. However, since they were available irregularly, many women had to purchase them from the *botica*, or drugstore. Several women reported that they received "shots" at the health center or from the doctor. Although the women could not identify the nature of this medication, talks with health personnel indicated that the most commonly administered injection was thiamine.

Folk beliefs. There were several folk beliefs pertaining to the role of food during pregnancy. Eggplant was considered by many to be the cause of a wide range of maladies with the undesirable results accruing to the baby rather than to the mother. It was believed that the baby would have a dark skin or would suffer "relapse" after birth. There was a widespread belief in community C that mothers should avoid eating squid to prevent the baby from adhering to the uterus. Since neither eggplant nor squid can be considered dietary essentials, retention of these beliefs has little effect on the outcome of pregnancy.

Need for improvement. The need for more education on the importance of a good diet during pregnancy was evident. While many mothers seemed unaware of benefits from the use of protective foods, those aware of them were not sufficiently convinced of their merits to make an effort to obtain them, or had insufficient resources to buy them. A similar attitude seemed to guide their use of supplements. They were taken when they were available conveniently at little or no cost. There was little realization that, given their diets, regular use of supplements throughout pregnancy would reduce illness. It is conceivable that it would be necessary to build in some system of tangible reward that would assure sufficient use of available health services so as to promote an improved level of prenatal health. Free or low-cost medication might be a possible means of assuring regular attendance at prenatal clinics. This would provide an occasion for education of the mother and the detection of abnormalities before they reach severe proportions. Since many mothers had stopped breast-feeding an older child only after the present pregnancy was confirmed, it was unlikely that they entered the latter with any nutritional reserves to carry them through gestation. Since poverty could well preclude the purchase of sufficient food for an adequate diet, the feasibility of a concurrent effort to increase home food production with special emphasis on vitamin A- and vitamin C-rich foods by those with access to arable land should be investigated. The importance of high-quality protein during the reproductive period suggests that all possible means of increasing its use be exploited. The use of available carabao milk, fish from rice terraces and fish ponds, and home production of legumes and nuts could be encouraged. Alternatively, increasing the purchasing power of the family appears to be the only way to increase the use of protein-rich foods.

In summary, the nutritional practices during pregnancy reported by the mothers in four community groups indicate that certain differences can be associated with the location of the communities and their contact with modern ways. In community A there was more reliance on physicians and practically none on non-medical practitioners. While women in this community had fewer food cravings, they had no more scientific knowledge of good dietary practices than those in the other communities. Also, they were not likely to modify their diets during pregnancy.

For the whole group, any modification in diet patterns was dictated by the likes and dislikes of the mother rather than by consideration of nutritional advantages. An exception is the restricted use of sweets, a practice designed to keep the calorie level low in the belief that it will prevent a large baby and a difficult delivery.

Dietary practices during lactation

The level of nutrition needed to support successful lactation is even higher than that required for normal pregnancy, with needs for various nutrients increasing from nine to 62 per cent above normal. This is a reflection of the fact that a breast-fed child gains as much in four to five months as the fetus did during the nine months of gestation. During lactation, in contrast to pregnancy, caloric needs are increased 50 per cent so that dietary modifications require a substantial increase in the quantity as well as the quality of the diet. While there is little evidence that the quality of the maternal diet affects the amount of milk secreted, it does influence the level of a few nutrients such as thiamine. If the diet does not provide the required nutrients, the production of sufficient milk to meet the child's needs can occur only at the expense of maternal reserves. In a country such as the Philippines, 80 per cent of the infants are breast-fed, and the majority of these for over eight months. Under these conditions, the quality of the maternal diet assumes great importance if lactation is to proceed without the health of the mother being jeopardized.

In light of the importance of diet during lactation, we asked mothers who were breast-feeding children at the time of the interview about their dietary habits. A twenty-four-hour dietary recall provided information on the quantitative and qualitative nature of the diet, and the extent to which the diet represented a modification of the mother's normal eating patterns. The interview also included questions about the environmental and cultural factors which influenced her dietary habits, and about her beliefs regarding the role of food during lactation.

Twenty-four-hour dietary recall. Each mother in the study was still breast-feeding a baby at the time of the interview, although some mothers were using occasional supplemental bottle feedings. Each was asked to recall the kinds and amounts of food she had eaten in the 24-hour period preceding the

Table 3

Basis for computing dietary score.

Food group	*Score per serving*	*Total possible score*
Energy-yielding foods		
Rice or bread	10	30
Fat-rich foods	5	5
Green leafy or yellow vegetables	10	10
Vitamin C-rich fruits and vegetables	10	10
Other fruits and vegetables	5	10
Protein-rich foods		
Meat, fish, or poultry	10	20
or		
Eggs	5	
or		
Beans and nuts	5	
Milk or cheese	15	15
or		
Fish paste	5	
		100

interview. The interviewer asked pertinent questions to help elicit as complete a record as possible. The subject was then asked to indicate if the recorded meals were typical of her recent dietary habits and, if not, how they differed. On the basis of these records, a dietary score based on the six food groups as shown in Table 3 was calculated to provide a qualitative measure of the adequacy of the diet. The maximum possible score of 100 represented a diet in which all six food groups were used in the recommended amounts. Failure to include any one given food group or to use it in the recommended amounts resulted in a lower score and an increased possiblity of a specific nutritional deficiency.

The dietary scores and the use of specific food groups are shown in Table 4. From this it is obvious that rice, the staple in the diet, was almost always used at least three times a day. It was very frequently served with fish and less frequently with meat or chicken. These diets were judged to provide the bare minimum amounts of protein required to meet the increased needs for lactation. The value of even small amounts of animal protein in supplementing the low-quality protein of rice cannot be overemphasized, especially under the conditions of nutritional stress imposed by lactation. The ultimate value of the protein, however, would be determined by the adequacy of the calorie intake. It appeared that, although the intake was well below the 3000 kilocalories

Table 4

Diets of mothers during lactation.

Diet during lactation	*Community*				
	A (N=50)	*B* (N=50)	*C* (N=50)	*D* (N=50)	*Total* (N=200)
Number of *rice* servings					
2–3	2%	24%	10%	10%	(11%)
more than 3	98	76	90	90	(89)
Number of *meat, fish, poultry* servings					
1–2	40%	32%	42%	70%	(46%)
3–4	52	56	58	20	(46)
More than 4	4	10	–	6	(5)
Number of *milk* servings					
0	92%	94%	96%	98%	(95%)
1 or 2	8	6	4	2	(5)
Number of *citrus-fruits* servings					
0	66%	54%	62%	100%	(71%)
1 or more	34	46	38	0	(29)
Number of *green-and-yellow vegetables* servings					
0	90%	80%	54%	90%	(78%)
1 or more	10	20	46	10	(22)
Dietary score					
100%	0%	0%	0%	2%	(1%)
90–95%	0	10	2	0	(3)
80–85%	2	0	2	0	(1)
70–75%	8	14	12	2	(9)
60–65%	32	32	60	4	(32)
less than 60%	58	44	24	92	(55)

recommended for lactating mothers, it was sufficiently high to maintain milk production. Fat used in food preparation contributed significantly to the energy content of the diet.

The diets were much less adequate in terms of the other protective food groups: milk, as a source of calcium and riboflavin; citrus fruit for vitamin C; and green and yellow vegetables for vitamin A. Ninety-five per cent of the mothers had no milk during the 24 hours evaluated, while four per cent had one serving and one per cent had two. While some mothers did use milk in coffee, this amount was insignificant in relation to recommended intakes, especially when one considers that sweetened, evaporated milk is almost universally used for this purpose. Since all mothers had been able to maintain lactation for three to ten months on a diet practically devoid of a rich source of

calcium, it is almost inevitable that the mothers' reserves of calcium were being depleted. Some less usual and possibly non-food sources such as fish paste, lime, or hard water may have provided some calcium. Seventy-one per cent of the women had no good source of vitamin C and 78 per cent had no rich source of vitamin A. All but 18 per cent of the women had at least one serving of other fruits and vegetables. Some of them contributed vitamin C and minimally protective amounts of vitamin A, but not the recommended amounts. Since white polished rice, which provided the bulk of the calories, was used almost exclusively in these communities, the intake of thiamine was likely to be low.

The overall adequacy of the diets is expressed by the dietary scores. These scores show that only four per cent of the group had diets providing a sufficient variety of food which could be considered "good" in terms of the needs of normal adult women. The diets of 57 per cent of the women were judged to be very low in calcium, vitamin A, and vitamin C. An additional 20 per cent who had some source of vitamin C were deficient in both calcium and vitamin A. Women in community D had the poorest dietary scores. The apparent adequacy of lactation for at least six months in the face of suboptimal intakes is in keeping with observations in other areas of the world. Data on other aspects of dietary practices and beliefs during lactation are shown in Table 5.

Dietary supplements. There was little evidence to indicate the use of dietary supplements during lactation. Four per cent, mostly from community A, took vitamin supplements regularly or occasionally. A total of eight per cent regarded milk or *Ovaltine* as a dietary adjunct. The majority, however, reported no effort to enrich the diet. The failure to consider lactation as a period of nutritional stress is reflected in the mother's evaluation of her food intake during lactation in comparison with that under normal conditions. Although all but two women said they were hungrier during lactation, only 50 per cent reported eating more food and 31 per cent said they ate less. In addition, they pointed out that they ate more as more food became available at harvest season, when the family had more money, or at a time of celebration. Conversely, less food was available as the family income diminished, and when stocks were depleted before harvest. The majority who did eat more had more of the same foods, while a few ate more fruits, vegetables, rice, or protein foods than normally. Many said they could not afford more food even though they were hungry.

Dietary restrictions. Dietary practices during the first few days post-partum are frequently culturally determined. Thirty-seven per cent of our sample maintained there were no restrictions, but about one-fourth avoided protein foods such as seafoods, bloody fish, meat, and eggs. One-fifth rejected various fruits and vegetables, and the remainder did not eat a variety of foods of little consequence, ranging from fish paste to sour foods to *buko*, or fresh young coconut.

Table 5

Other dietary practices and beliefs during lactation.

Other dietary practices	*Community*				
	A (N=50)	*B* (N=50)	*C* (N=50)	*D* (N=50)	*Total* (N=200)
Dietary supplements					
None	66%	84%	60%	92%	(76%)
Vitamins	14	2	6	6	(7)
Ovaltine or milk	14	5	34	2	(15)
Diet during lactation compared to normal diet					
Same	46%	54%	46%	56%	(51%)
More of same food	8	26	14	10	(15)
Less food	44	12	38	30	(31)
Foods considered good during lactation					
To produce more milk					
Vegetables	34%	26%	42%	46%	(37%)
Fish and seafood	30	36	60	8	(34)
Buko or young coconut	0	10	0	38	(12)
Broth	20	0	12	0	(8)
More nutritious					
Vegetables	26%	30%	4%	20%	(20%)
Milk	8	26	6	18	(15)
Fish	4	8	2	-	(3)
Meat	10	8	22	14	(14)
Eggs	10	30	6	2	(12)
Foods to avoid during lactation					
None	42%	86%	56%	58%	(61%)
Sour foods	46	-	26	4	(19)
Banana	-	-	-	10	(2)
Corn	2	-	-	10	(3)
Other fruits and vegetables	12	6	2	24	(12)
Cold foods	-	-	10	2	(3)

Foods recommended. Although they themselves reported little variation in their diets during lactation, almost all mothers believed that certain foods were especially good for nursing mothers. In most cases the merit of the food was related to its purported ability to stimulate milk production. Some others were described as nutritious foods, while others were recommended because of their vitamin content. Vegetables, as well as protein-rich foods, such as meat, fish, milk, and eggs, were mentioned by over half the mothers. In community C there was widespread belief in the merits of clams or snails as galactagogues,

or stimulants of milk secretion. Only 15 per cent mentioned milk as a stimulant to lactation. In the two areas, B and C, where there was a thriving coconut industry, buko was recommended. The mothers' assertion that they did eat the foods they reported to be especially good was not borne out by their food intake at the time of the inteview. Similarly, the fact that over half the mothers were especially hungry for protein foods such as meat, fish, chicken, and milk did not lead them to eat more of these than they did normally. The cost of these foods may have precluded their use.

Foods to avoid. Sixty-one per cent of all mothers and 86 per cent of those in community B felt that there were no foods that should be avoided during lactation. Nineteen different foods were enumerated by others. Sour foods, which were believed to cause the baby to regurgitate, were mentioned most often and almost exclusively in community A. It was believed that bananas caused gas in the baby; corn caused indigestion and colic; banana heart dried the milk; and cold foods, such as ice cream, caused the baby to catch cold. In most cases, such beliefs were regional and confined to one of the four communities. Other foods, such as eggplant, fish paste, jackfruit, papaya, camote, and balut, were also mentioned as undesirable foods for a lactating woman. None of these could be considered essential to the success of lactation. While there may be little real basis in experience for avoiding them, failure to include them will have little detrimental effect. On the basis of Jelliffe's (1961) classification of cultural beliefs and practices regarding food into beneficial, neutral, unclassifiable, or harmful, these beliefs could be classed as neutral.

Summary. Diets as reported by lactating women in our sample fell far short of meeting established nutritional standards. However, the women had supported lactation for a relatively long period of time. In addition, most of these women had nursed previous children when there was no reason to believe their diet had been any better. Under these conditions of restricted nutrient intake, maternal reserves inevitably get depleted to meet the demands of lactation. Such mothers are ill-prepared for the stress of a subsequent pregnancy, the most frequent reason for weaning a child. The very limited concern about diet during this period of lactation suggests that education is needed to stress the role of adequate nutrition to protect the health of the mother. Since there was no tradition of post-partum medical examinations or routine check-ups for the infants, it appears that it would be necessary to instruct the women during pregnancy. At that time, they are more likely to seek medical advice. In our study, rural health units which did provide nutritional supplements for pregnant women had established no tradition of supplying them for lactating women. Advice on food intake during lactation came primarily from sources that tended to perpetuate established attitudes and belief systems. These provided little opportunity for innovation in dietary practices.

Infant-feeding Practices

In developing countries high infant mortality rates have been associated with the following factors: failure to breast-feed, early weaning of infants to starchy gruels, and failure to supplement the diet after six months of age, when breast milk is no longer adequate to support a normal growth rate. Our interview schedule was developed to elicit information on the considerations which led mothers to breast-feed their infants, and their beliefs about the relative merits of complete and supplemented breast-feeding. Also asked were their practices of supplementing the infant's diet with other foods, their sources of advice on feeding their infants, the extent to which they consulted a physician about their child's health, and their use of dietary supplements. A discussion of the findings reported in Table 6 follows.

Table 6

Infant-feeding practices.

Infant-feeding practices	*Community*				
	A (N=50)	*B* (N=50)	*C* (N=50)	*D* (N=50)	*Total* (N=200)
Feeding method					
Breast	76%	48%	74%	76%	(69%)
Advantages					
Less expensive	24%	34%	42%	%	(37%)
Best for baby	36	4	32		(26)
Convenient	16	36	8	–	(15)
Close relationship with baby	10	4	2	2	(5)
More nutritious	–	4	2	8	(3)
Disadvantages					
None	38%	84%	68%	14%	(51%)
Confining for mother	22	2	48	10	(22)
Inconvenient	6	2	2	–	(3)
Mother weak, etc.	–	4	18	14	(10)
Breast and Bottle	24%	52%	26%	24%	(31%)
Advantages					
Mother free to work or be away	22%	50%	72%	56%	(50%)
Use as supplementing feeding	4	14	12	18	(12)
Disadvantages					
Expensive	–	–	2%	20%	(6%)
Difficult to control milk temperature	–	–	20	–	(5)

Tables 6 (continued)

Infant-feeding practices	*Community*				
	A	*B*	*C*	*D*	*Total*
	(N=50)	*(N=50)*	*(N=50)*	*(N=50)*	*(N=200)*
First food given to child					
Rice gruel	42%	49%	18%	36%	(25%)
Rice	12	66	18	22	(29)
Egg yolk	14	2	16	14	(12)
Biscuit or bread	2	16	4	6	(7)
Source of advice on infant-feeding					
Mother or mother-in-law	66%	44%	32%	72%	(52%)
Doctor, nurse, or midwife	–	18	10	14	(11)
Friends and other relatives	22	30	8	4	(16)
Own experience	10	6	34	2	(13)
Baby given supplement					
No	4%	14%	8%	20%	(12%)
Vitamins	12	18	32	6	(17)
Tiki tiki and vitamins	22	22	24	6	(18)
Tiki tiki	56	46	36	68	(52)
Supplement stopped					
No	24%	24%	56%	40%	(36%)
Yes (baby no longer needed it)	32	40	16	–	(22)
Yes (bottle empty, too expensive)	–	16	12	30	(15)
Yes (baby disliked it)	6	2	–	10	(5)

Choice of early feeding method. Since only women who were lactating were asked to participate in this study, our data on infant-feeding cannot be considered applicable to Philippine mothers who do not breast-feed at all. However, it will apply to the majority, because previous data on infant-feeding in the Philippines indicate that in similar rural areas, from 80 to 90 per cent of the mothers choose breast-feeding (Bulatao-Jayme et al. 1966).

Table 6 shows that 69 per cent of our population chose breast-feeding alone and 31 per cent chose a combination of breast- and bottle-feeding. This latter figure is lower than the 50 per cent reported in a población in Bayombong (Bulatao-Jayme et al. 1966). The mothers chose complete breast-feeding when they had sufficient milk, and a combination when they had insufficient milk, were working, needed a rest, or were ill. Breast-feeding was considered less expensive, more convenient, and healthier for the baby. In addition, eight per cent of the respondents believed there was less danger of contamination than when bottle-feeding was also used. Five per cent, mainly from community A, felt that the close relationship with the child was important. These same

mothers in community A were more concerned about the effects of the method of feeding on the health of the baby than were those from the other areas. The number of mothers who considered breast-feeding more economical increased with increasing distance from Manila, so that twice as many mothers in community D as in A cited cost as a factor in their decision. Fewer mothers in community A than in those communities farther from Manila felt that being able to return to work was an advantage. Over half the mothers felt there were no disadvantages to breast-feeding. The others cited disadvantages to the mother such as lack of freedom, weakness, hunger, and poor health, but saw no disadvantages as far as the child was concerned. It is interesting that in community B, where lactating mothers had the best dietary scores, there was less concern about the adverse effect of lactation on the mother's health than in communities C or D, where maternal diets were less adequate. Mothers in community D regarded bottle-feeding as inconvenient and those in community C were concerned about the difficulty in regulating the temperature of the milk with bottle-feeding.

Mothers' reactions. While breast-feeding is often an economic necessity and the socially sanctioned method for early feeding of infants in developing countries, it has not always been reported as a satisfying and pleasant experience for the mother. When asked to express their reactions to the experience, mothers in three communities expressed feelings of happiness and pleasure which they attributed to the experience of being close to the baby. On the other hand, although half the mothers in community A, which is closest to Manila, felt that it was healthier for the child, the other half did indicate considerable discomfort from painful breasts and were the only group which experienced difficulty in breast-feeding. If these attitudes and reactions are a function of contact with urban ways, they represent the assimilation of one of the less desirable of modern attitudes and practices in infant-feeding.

Frequency of feeding. In communities A, B, and C, from 22 to 50 per cent of the babies were nursed whenever they cried, reportedly from seven to ten times a day. Those who were not nursed were given food or a toy to pacify them, or occasionally were cuddled, walked, or rocked. In contrast, 72 per cent of the mothers in community D reported that they nursed their babies each time they cried. Observations confirmed their assertion that the baby was nursed very frequently and on demand. Almost never was a child left alone to cry.

Mothers in areas B and D weaned their babies abruptly while those in A and C did it gradually. Mothers who weaned abruptly complained of enlarged and painful breasts, suggesting that there was still a copious supply of milk at the time of weaning. No physical distress was associated with gradual weaning.

Introduction of other liquids. At the time of the interview, over four-fifths of the infants between three and ten months of age had been given something

other than breast milk to drink. Approximately one-fourth were given milk as a supplementary beverage. Sweetened, condensed milk was given to 12 per cent; evaporated milk, to five per cent; and powdered milk, to six per cent. The proportions used in the preparation of the supplementary milk varied, but the most common practice was to add only sufficient condensed milk to color or sweeten the water. This was often as low as one part milk to eight parts water. The nutritive value of such a product is about one-fourth that of whole milk. The child fed such a nutritionally inferior product was saved almost certain undernutrition by the fact that it was also breast-fed. Water used in preparing beverages was almost universally boiled in community B, very frequently in community A, and less frequently in communities C and D. Failure to use a safe water supply is a frequent cause of infection for a bottle-fed child.

About 42 per cent of the mothers in each community offered *calamansî* juice. It is prepared in a concentration of one to two calamansî per cup of water with sugar added to sweeten it. It provided a child with a very small but sufficiently protective amount of vitamin C to supplement that in breast milk. The major reasons cited for using another liquid were to provide vitamins for health, to quench thirst, to provide a supplement when the mother was away, or to follow the doctor's advice. In community A, there was a widespread belief that calamansî juice helped bone growth. The calamansî juice was usually given from a bottle. In community B, 30 per cent of the infants were fed broth. Coffee and soft drinks were also mentioned as liquid supplements to the milk diet.

Introduction of solid foods. Thirty-six per cent of the infants had not been given any solid food at the time of the interview. Few mothers had introduced or planned to introduce solid foods prior to three months. Over half offered it between three and five months, and all but seven per cent by eight months. Aside from the foods which were chosen for a single initial feeding on the basis of folk beliefs of their role in personality and intellectual development, rice or rice gruel was almost universally chosen as the first food on the basis that it was soft or easy to digest. Egg yolk was mentioned 23 times and foods such as bananas, mashed potatoes, and biscuits were each given by a few mothers.

Desirable and undesirable foods. Mothers had many more beliefs about what foods were bad for infants than about those that were good. In general, ease of digestion was an overriding concern in determining the merit of a food. Thus, while rice and rice gruel were appropriate, glutinous rice was to be avoided since it was considered heavy for the stomach. One-third of all mothers, mainly from communities C and D, felt that bananas should be avoided by infants. Similarly, corn was deemed unsuitable by 28 per cent of the mothers; and fatty foods, guava, and cold foods were avoided by others. All were thought

to be indigestible. Other mothers believed that fish caused worms; sweets, poor teeth; egg, tooth decay; and hard foods, colic. They thought that fish paste, sea foods, sour foods, candies, and cold foods, such as ice cream, should not be fed to children for a variety of reasons. There may be very sound reasons for some of the beliefs and little basis for others. In general, the effect of eliminating these foods from the diet is minimal, and with the exception of eggs, none would make a significant nutritional contribution which was not being made by other foods.

Source of advice. The mother relied primarily on her mother or mother-in-law for advice on what and when to feed her babies. These relatives cautioned against overfeeding the baby and recommended giving a dietary supplement. Friends and other relatives were more likely to be consulted than the doctor or midwife, and 13 per cent of the mothers relied on their own experience. All but two mothers reported accepting whatever advice they were given. None reported using any kind of written material.

When asked where they would go for more information on how to feed babies, over three-fourths of the mothers in communities A, B, and C said they would ask a doctor, while only 12 per cent in community D considered him a good source. The remainder felt their mother's advice or their own experience was adequate. Only one person mentioned the health center, and only four, books and pamphlets. These answers are interesting since such a small number of the mothers said that they were currently relying on the doctor for advice on feeding methods.

Dietary supplements. All but three per cent of the mothers felt that the child needed a dietary supplement. Their reasons ranged from vague considerations such as "to make him strong" (24 per cent), "to make him healthier" (44 per cent), and "good for baby" (eight per cent); to more specific considerations such as preventing beri-beri (12 per cent), increasing resistance (10 per cent), and because mother's milk was insufficient (two per cent). All but 23 infants were given a supplement—either vitamin (17 per cent), *tiki tiki*, a rice-bran, extract (52 per cent); or both (18 per cent)—at some time or another. The age at which supplementation was started, the period during which it continued, and the regularity with which it was given showed that at the time of the interview, only 46 infants had received a supplement regularly since birth. Fifty-seven were given a supplement for one month, and an additional 32 for two to three months. Nineteen started at one month; 16, at two months; four, at three months; and 10, at four months. The most common reasons for stopping the use of supplements were that the mother felt the baby "had had enough" or that it "didn't need them any more." Others (11 per cent) quit when the bottle of supplement was empty, and some (four per cent) discontinued its use because it was too expensive. In other cases, either the baby or the mother did not like them. Mothers in communities A and B were the ones

most likely to feel that the child no longer needed a supplement, and those in C and D were the ones who would most likely regard it as too expensive. Since all the infants were breast-fed the need for a supplement other than vitamin D was much less than it would have been for bottle-fed infants. In the Philippines, where mothers' diets are frequently low in thiamine and where a large number of infant deaths are attributed to beri-beri, there is a need for a thiamine supplement either for the lactating mother or for the child. Tiki tiki is a logical source of supplemental thiamine.

The practice of exposing the child to sunlight for brief periods each day was widespread. Invariably, it was done before 7 a.m. or at the latest, nine o'clock, apparently because this was a convenient time for the mother. While some ultraviolet irradiation would occur at that time, greater benefits would result from the activation of the precursor of vitamin D in the skin if the child were exposed to sunlight closer to noon. The very general concern of Filipino mothers that their children's skin remain light may be an additional reason for their choosing to expose the child at the time of day when tanning, as well as the irradiation of vitamin D precursors, would be minimal.

Weaning practices. The 165 mothers who had from one to ten other children for a total of 467 children were the source of information on duration of breast-feeding and reasons for weaning as it pertained to previous children. The data are presented in Table 7. Of the 37 babies weaned at six months or earlier, 23, mostly from community B, were weaned because the mother had insufficient milk. The others were bottle-fed when either the mother or the baby was sick or the mother was working. Breast-feeding was terminated for 69 infants between six months and one year for many reasons, ranging from subsequent pregnancies, illness of the baby or mother, insufficient milk, or the fact that the child was considered old enough. The majority of infants (218) were weaned at 12 months, mainly for the following reasons: the mother felt they were old enough, they had already begun eating solids, or they refused the breast. An additional 115, or all but 28 of the remaining infants, had been weaned by 18 months, again because they were old enough or already eating solids. Eleven infants were still being breast-fed at the time of their death in the first year of life.

Extent of medical care. Forty-two per cent of the babies had never been seen by a doctor. Forty-nine per cent had been seen when sick, either at home, at a clinic, or at a health center; and eight per cent had had at least one routine check-up. The major causes of sickness were fever, diarrhea, and coughs or colds. The majority of the mothers felt that there was no need to modify the diet during sickness, but others held many beliefs about the role of food in the treatment of sickness.

Summary. Many of the practices observed in feeding infants in these communities were very commendable and undoubtedly contributed greatly

Table 7

Weaning practices with older children.

Age of weaning	*Number of children*
Less than 6 months	37
6–8 months	23
9–11 months	46
12 months	218
13–18 months	115
18 months or older	28
Reason for weaning	*Number of times mentioned*
Child old enough	219
Child already eating solids	101
Insufficient milk	67
Mother pregnant	19
Baby sick	17
Child refused breast	17
Mother sick	20
Mother working	7

to the well-being of the infant. The widespread practice of breast-feeding, the relatively early (six months) addition of solid food, and the recognition of the need for dietary supplementation were all noteworthy. Many practices which were determined by cultural or folk beliefs were of little value, but, on the other hand, could not be considered detrimental. Most of these revolved around the selection of the initial food for a baby and beliefs about some of the foods to be avoided in feeding infants. That mothers relied on friends and relatives rather than medical personnel for advice was likely to contribute to the perpetuation of many of the neutral practices as well as to some of the harmful ones. Among the latter were the use of a very dilute supplemental milk feeding; failure to expose the child to sunlight at those times of the day when vitamin D irradiation is most likely to occur; and of failure to supplement the milk diet with a good source of iron and protein by six months of age. The need for nutrition education of the mothers is evident but efforts are made difficult by the fact that they avail themselves of local health services only when the child is ill.

Feeding practices among preschool children

In countries where breast-feeding is the accepted method of feeding in early infancy, there is very little evidence of malnutrition among children under six months of age. From that age on, however, there is progressive growth

retardation if the child is not given supplemental feedings. By two years of age, when most infants have been weaned completely from the breast, depriving them of a source of good quality protein, there is often a very marked increase in the incidence of malnutrition. This is manifested primarily in the increased susceptibility to infections with high mortality rates from conditions not normally fatal. Since it is the two-to-five-year-old who is most vulnerable to malnutrition, we were interested in the way in which mothers had fed their older children. Questions were directed toward their knowledge of and beliefs about the importance of food in the health of young children.

Diet patterns. Data on beliefs and practices in feeding preschool children are given in Table 8. Attempts to elicit a 24-hour recall record of the daily food intake for the second youngest child were very unsuccessful. Most mothers reported that their child was always with them, ate the same foods at the same time, sometimes but not always, in smaller amounts.

Mothers seemed to have little knowledge of any way in which the child ate differently than they did. Further questioning regarding their beliefs about which foods were desirable and which undesirable for preschool children led to 36 per cent saying that all foods were good and appropriate and 72 per cent

Table 8
Feeding practices of 2–5 year-olds.

Feeding practices	*Community*				
	A	*B*	*C*	*D*	*Total*
	(N=50)	*(N=50)*	*(N=50)*	*(N=50)*	*(N=200)*
Foods considered good					
All	16%	10%	92%	26%	(36%)
None	4	14	2	10	(8)
Milk	28	34	2	12	(19)
Fruit	22	50	8	38	(34)
Vegetables	8	44	6	26	(21)
Meat, eggs	26	52	–	14	(17)
Rice	6	4	–	12	(6)
Foods to be avoided					
None	40%	92%	100%	58%	(72%)
Fruits (banana, mango)	16	4	–	28	(12)
Corn	16	–	–	16	(6)
Solid foods	6	–	–	14	(5)
Foods good for growth					
None	14%	32%	2%	50%	(25%)
Milk	30	40	38	20	(32)
Eggs	32	22	38	18	(27)
Meat	6	8	8	8	(7)
Vegetables	8	–	46	8	(16)
Rice	22	4	2	6	(8)

replying that there was nothing a child of this age should not eat. In community C, 92 per cent thought all foods were good,and 100 per cent, that there were no foods to avoid. Other mothers mentioned fruit, vegetables, milk, meat, eggs, or a combination of these as being especially good because of their nutritional merits or because they "gave strength" or were "good for growth." Similarly, when asked to designate foods which helped a child grow, they pointed to the same protective foods—meat, milk, fruit, vegetables, and eggs—although 25 per cent said no food promoted growth. Although the mother had some knowledge of the health benefits of certain foods, if the child ate the same foods as its lactating mother, it seldom received protective foods, such as fruit, vegetables, milk, and eggs. That the child's eating habits were of no special concern to the mother and that she apparently made no effort to direct its eating pattern, underscore the notion that little attention is directed toward feeding the preschool child. Once he is able to choose his own food and feed himself, he is, by and large, left to his own resources.

Food to avoid. Twenty-eight per cent of the mothers thought there were one or more foods that a child should avoid. Foods rejected on the basis that they were hard to digest were bananas, corn, glutinous rice, and solid foods. White corn, mongo beans, and peanuts were believed to cause diarrhea, while fruit, jackfruit, fatty foods, sour foods, and cold foods were each considered undesirable by a few mothers who gave no reason for their feelings. While most mothers said that they gave the young children all foods that the family had, some withheld "indigestible" foods such as corn, hard foods, cold foods, bananas, and rice cakes.

To determine if the mothers had a concept of the relation between food habits and sickness, their views on the cause of sickness in children were sought. Almost half implicated poor food habits by mentioning lack of vitamins or lack of food as the most probable cause. Eighteen per cent, over half of whom were from community C, felt that such things were determined by fate, which destined the child to be sickly. Another 27 per cent felt that carelessness on the part of the mother or failure to follow health rules were important causes. Some mothers suggested that weather was a factor, while still others implicated "low resistance." In answer to a direct question as to whether sickness was due to magic, 52 per cent thought it was, and an additional 15 per cent considered this a possibility. Only 26 per cent statsd unequivocally that magic was not responsible. Many of the mothers were able to cite examples of illnesses caused by magic which had been cured by the same means. While beliefs in magic were common in all communities, specific beliefs were confined to one area.

The concept that food plays a role in the treatment of sickness was evident in answer to questions regarding foods that should be given to sick children and those that should be avoided. Interestingly, 41 per cent of the mothers

who had chosen rice as the first food for a child because of the ease with which it was digested, withheld it from a sick child on the grounds that it was indigestible. Nine per cent said milk should be avoided, while 23 per cent recommended milk as the sole food because it was easy to digest. In community C these figures were 34 per cent and 48 per cent, respectively. Although rice was considered too indigestible for a sick child, 46 per cent recommended rice soup or rice gruel. There was a tendency to avoid foods high in protein and cellulose, and to substitute fluids, fruits, dry bread, and eggs.

Malnutrition is known to result in an increased susceptibility to infectious diseases. Among the illnesses reported for older siblings, high fever and diarrhea were very common. Chicken pox, measles, and flu afflicted many children, and respiratory infections such as bronchitis were also common. These data, showing a high incidence of infectious diseases, are in keeping with the vital-statistics data showing that infection was the most common cause of death among siblings in the families in our study. Beri-beri, a specific form of malnutrition resulting from a thiamine deficiency, claimed the lives of ten children, half of whom were in community C. In this community mothers were asked the cause of beri-beri.

Cause and prevention of beri-beri. The majority (50 per cent) knew that beri-beri was caused by a lack of vitamin B_1 (thiamine) and felt that the best was to prevent it was to eat mongo beans. Many seemed to associate it with pregnancy and attributed it to a lack of exercise at this time (16 per cent) or sleeping late in the morning (26 per cent). Two mothers thought beri-beri was inherited, and one believed that failure to perspire was a cause. Besides recommending exercise (12 per cent), keeping busy (12 per cent), and not sleeping late (6 per cent), many of these mothers, although misinformed as to the cause, knew that eating mongo beans, taking tiki tiki or thiamine, having a thiamine injection, or eating unpolished rice were effective forms of treatment. Although six people recommended eating unpolished rice, no one suggested that enriched rice had a similar value. Enriched rice was not sold in these communities and people apparently had not associated the efforts of the national government to make rice enrichment compulsory with an effort to reduce the incidence of beri-beri.

Family food practices

Food expenditures. Because of the large and fluctuating number of people sharing the same food supply, it was difficult to get useful information on the amount of money spent on food. Food costs per person were found to be lowest in community D, where less than three pesos per week were spent per person.[2] Costs increased the closer the community was located to the urban

[2] One Philippine peso is roughly equivalent to 25 U.S. cents.

center. There was general agreement that the amount of money spent on food increased at the holiday season, at fiesta time, and during births, deaths, and marriages. Thirteen per cent spent more after harvest, when they had more money, and also during harvest, when they worked more and ate more. Many families said they were able to purchase about the same amount of food the whole year round. The reason was either that they had a steady source of income or their relatives would help them out when their own resources were depleted.

Food production. The following home-produced food staples have been advocated as effective and expedient ways of improving the nutritional status of a population: legumes, fruit, vegetables, meat or eggs. These are especially desirable for low-income families and in areas where an ineffective marketing syetem results in an inadequate distribution of food. Unfortunately, the families who might benefit most from garden produce are often the ones who do not have sufficient land to cultivate. Among our subjects, half the families in communities C and D and one-third in communities A and B had gardens in which they grew vegetables and fruit. About half of these found the garden successful while the rest regarded theirs unsuccessful due to theft, the amount of work involved, or lack of space. Twenty-two per cent of the families raised chickens, but only five per cent had more than 20. The most common deterrent to raising chickens was the problem of theft, particularly in communities C and D. Families raised only as many chickens as could be maintained on table scraps and were unwilling to invest in extra feed. Other animals, mostly pigs and ducks, were raised by 50 per cent of the families. Community C raised the most pigs, of which about one-fourth were used by the family and the rest sold. The majority of the pigs were maintained on table scraps. Duck raising was a major source of income for families in community A, but there was little evidence that the mothers and children were consuming the eggs.

Folk beliefs. The influence of culturally determined beliefs concerning food practices and nutritional adequacy is one to which the nutritionist must constantly be alert, especially when attempting a nutrition-education program. Our study revealed many such practices generally confined to one community but virtually none of them had any real significance in terms of overall dietary adequacy. The use of specific foods, such as the first solid food for infants, was often determined by folk beliefs. However, because they were given only once and then followed by more conventional foods, they had little impact on the diet of the child. For instance, in community D beliefs such as the following would provide little basis for concern in nutrition education: that seven grains of rice in a sea shell would assure that the child would never be hungry; that pork would mean freedom from future digestive disturbances; and that the child who was first given shrimp would become active like a shrimp. Similarly, community B's belief that the early use of salt would make the

child thrifty, or that not eating octopus during pregnancy to make delivery easier would have little significance for nutritional adequacy.

Community A and community C, which had ready access to seafood, considered clams as good stimulants to milk secretion; mothers in the other two communities, on the other hand, considered fresh young coconut as valuable.

Eggplant is a food that is generally maligned at all stages of the neo-natal period. Since it makes no significant nutritional contribution beyond a few calories, it matters little whether it is avoided to "prevent relapse," to keep the baby from having dark skin, or to make delivery easier.

The practice of withdrawing protein foods and even rice from the diet of a sick child is likely to be the most significant of all food beliefs reported. Deprived of these foods, the child is left with a diet very low in calories and practically devoid of protein. This regime will lower rather than increase its resistance to infection.

Community differences. In the foregoing discussions any outstanding differences in practices from one community to another were identified. However, it is only after reading all the responses for any one community that one gains an overall impression of dietary beliefs and practices as they differ from area to area. The following discussion will deal with differences in infant and maternal feeding practices which may be a reflection of proximity to Manila.

In presenting these findings, we would like to emphasize again that since different interviewers collected data in the four communities, it is very possible that some differences may be attributable to them rather than to beliefs and practices.

Mothers in community A which is more industralized than the others and close enough to Manila to have frequent interchange with the latter, seem to have acquired more practices and attitudes which are characteristic of technologically advanced societies. For instance, in making decisions, they are more likely to be concerned with their own feelings and needs than with those of the infant. They report more nausea in pregnancy, have more physical complaints on their first visit to the doctor, have more difficulties in breast-feeding, and enumerate more disadvantages in breast-feeding, primarily the lack of personal freedom. Although they have more ideas about the benefits of certain foods, their dietary practices are scarcely different from those of mothers in the other communities. They are more likely to take supplements during lactation. In general, they are less concerned about the cost of food. On the other hand, they stop giving their child a supplement if they feel it is no longer necessary. They rely much less on the hilot or herbolario than mothers in the more remote areas, report that "magic is no longer believed in," and have their babies delivered by a licensed midwife. Although their community receives more newspapers per capita than any of the other areas, the mothers have

made little use of any nutrition-education material which may have appeared there. It was only in this community, however, that any mention was made of commercially prepared baby foods. This is likely to be the result of exposure to advertising.

Mothers in community B had better diets during lactation and seemed to have more sound ideas about the relation of food to the health of the child. The foods they avoided during pregnancy were primarily sweets which they felt would cause a large baby. In addition, they had fewer beliefs than mothers in other areas about the detrimental effects of specific foods during lactation or in feeding babies. Almost all of them reported boiling water in preparing beverages for the babies. More mothers in this area than in others felt that the doctor was the best source of advice on feeding practices, and felt that sickness was the result of failure to follow health rules. Conversely, many mothers were convinced that either *gaway*, a form of magic, or the *tikbalang*, a mythical creature with the features of both horse and man, was responsible for much illness. This, in turn, could be cured when a quack doctor rubbed the affected part with his saliva, or when he whispered in the patient's ears. This community reported a higher incidence of colds and respiratory infections, possibly a result of the slightly cooler and damper climate characteristic of places at that elevation. A local plant, *mansanilla*, was used to make a tea which was frequently used in bottle-feeding infants.

One finds in communities C and D, which are farther from Manila, many practices similar to those in areas close to the city but which are based on a different set of belief patterns. The choice of the first food is determined by its reported beneficial effect on the child's digestive system in later life. As a result, foods such as pork fat, grains of rice, and shrimp are given first. They are given only once, and are followed as much as two months later by foods judged as easy to digest. The culturally based classification of food into hot and cold is the rationale behind some food practices. (However, in those instances where we have used the terms *hot* and *cold* we have been referring to temperature.) There is virtually no concern about what the preschool child eats nor is any merit attributed to any particular food. Mothers' judgments are more likely to be based on their own experience or their mother's advice. In community D, very few regard the doctor as a potential source of advice. There seems to be a pervasive concern about the cost of food. Supplements are abandoned when the jar is empty; breast-feeding is considered less expensive. The disadvantage of breast-feeding lies in the fact that the mother cannot return to work, and sickness is blamed on lack of food when there is no money. Women in these communities had more food cravings during pregnancy; fewer of them used supplemental bottle feedings; few had to abandon breast-feeding because of insufficient milk, and many reported suffering from enlarged breasts when they did stop, indicating that at eight to twelve months

they were still lactating freely. Home production of fruits and vegetables was attempted more frequently, but it did not result in better diets at the time of the interview. In community D, fish was almost the sole source of protein for a family since the few eggs they produced were sold. In community C, there was a widespread belief that sickness could be cured by inhaling fumes of *suob*, a brew. In community D, many physical defects in infants were attributed to the dietary practices of the mother.

In summary, many long-established, culturally determined nutritional practices have changed little in spite of the spread of modern ways of thinking and behavior. Some traditional patterns and attitudes have been supplanted by those more characteristic of the technologically advanced societies. While some of the changes are commendable, many have been of little benefit. With the impact of modernization, there appears to be only a slightly more sophisticated knowledge of some concepts in the health-related fields. Many traditional belief systems persist and are maintained in spite of access to more scientific information. The concurrent use of a rural health center and an herbolario by pregnant women is a prime example of the reluctance with which established practices are abandoned for newer techniques.

Summary

Data collected in four communities at varying distances from the urban center of Manila reveal surprisingly few significant differences in maternal and infant-feeding practices among them. The diets of lactating mothers fall below established nutritional standards, with calcium, vitamin A, and vitamin C being their most obvious needs. The almost universal use of unenriched, polished rice also suggests suboptimal intakes of riboflavin and thiamine. Rice is the major source of protein, the quality of which is raised by the animal protein traditionally taken with it. In spite of these dietary limitations, most mothers lactate for 6 to 12 months and few wean their children because of insufficient milk. Such a situation implies a depletion of maternal nutrient reserves since there is no emphasis on modification or nutritional supplementation of diets during lactation.

While many folk beliefs prevail regarding the relationship of food and health, their acceptance has little impact on the nutritional adequacy of the diet. Most, although unfounded in scientific fact, are harmless. A much more significant factor in limiting food intake is the lack of money with which to buy the foods which pregnant and lactating mothers want or know to be especially good for themselves and their infants. Most diets would be improved significantly if home-produced fruits, vegetables, and eggs were available; however, there appear to be many socially determined deterrents to home production of food.

In addition to the role of poverty in limiting and determining food practices, the most significant finding from a nutrition-education standpoint is the almost universal lack of knowledge of and concern with the diets of the preschool child. There was so little concern with this group, generally considered the most vulnerable from a nutritional standpoint, that mothers not only did not think that any special food was important for growth; they also did not know what the child ate. One explanation could be that, in the majority of cases, the mother of a preschool child (two to five years old) was either pregnant or nursing another child. This commanded more of her attention, leaving the older child relatively neglected.

Since nutritional practices varied little with increasing distance from Manila, one may speculate that the effectiveness of the schools and puericulture centers as major institutions for nutrition education has been relatively equal in all areas. The mass media more accessible to those nearer Manila have contributed little to further improving nutritional practices, but may be responsible for the tendency to abandon folk beliefs and non-medical practitioners and adopt, instead, the Western attitudes observed closer to Manila. In all areas, lack of money rather than lack of knowledge is a major deterrent to improved diets. The post-weaning period is the period about which mothers have the least knowledge and express little concern. As a result, the preschool child presents the greatest challenge for the nutritionist.

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13. ABSTRACT

Reports four studies under the above contract, dealing with social change in the Catholic Church in the Philippines led by the Cursillo (a group of laymen); differences in patterns of communication preferred in experiments with Filipino, African and American subjects; personality characteristics and problem solving in Filipino children; and the diets of mothers and of their year-old babies in four communities at different distances from Manila.

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